
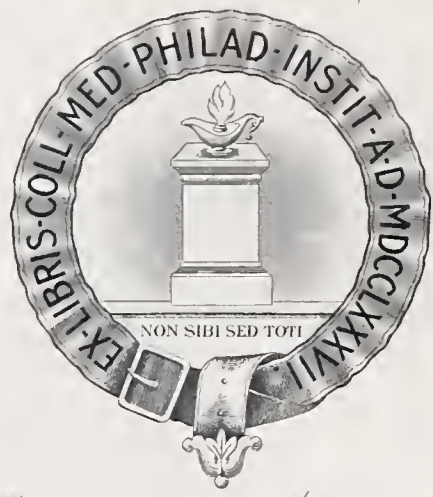


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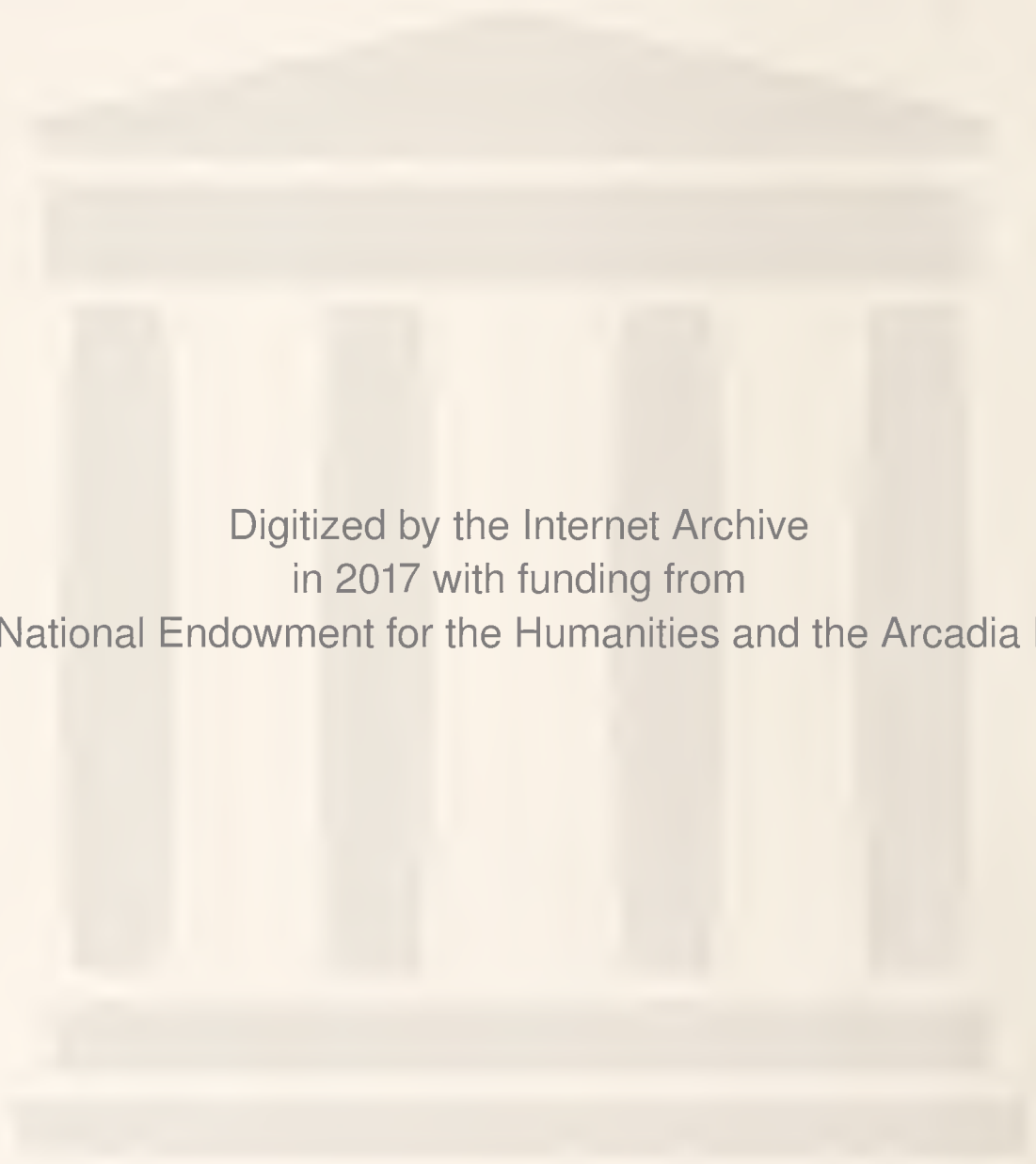


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THE JOURNAL

OF THE

Tennessee State Medical Association

Owned, Published and Controlled by the Tennessee State Medical Association
ISSUED MONTHLY under Direction of the Trustees

OLIN WEST, M. D., Editor and Secretary

J. F. GALLAGHER M. D., Associate Editor

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This Association does not officially indorse the opinions presented in the different papers published herein.
Entered as second-class matter May 28, 1908, at the post office at Nashville, Tenn.

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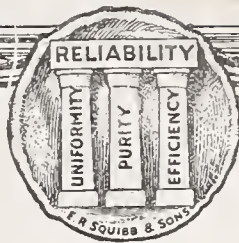
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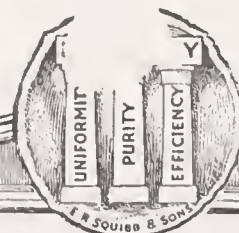
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VOLUME XIII

NASHVILLE, TENN., MAY, 1920

NUMBER 1

MINUTES OF THE EIGHTY-SEVENTH ANNUAL MEETING OF THE TEN- NESSEE STATE MEDICAL ASSOCIATION.

The eighty-seventh annual meeting of the State Medical Association was called to order in the Hamilton County courthouse on Tuesday morning, April 6, 1920, by Dr. J. C. Brooks, Chairman of the Committee on Arrangements of the Chattanooga Academy of Medicine and the the Hamilton County Medical Society. Prayer was offered by Rev. Dr. Hill, of the First Christian Church of Chattanooga. Dr. E. B. Wise, of Chattanooga, delivered the welcome address on behalf of the Chattanooga Academy of Medicine and the Hamilton County Medical Society, and Hon. A. W. Chambliss, Mayor of Chattanooga, welcomed the Association in behalf of the city.

In the absence of Dr. J. A. Witherspoon, who was to have replied to the address of welcome, Dr. Jere L. Crook, of Jackson, replied to this address on behalf of the Tennessee State Medical Association.

Announcements were made by Dr. Brooks with respect to arrangements for the meeting and entertainment to be provided for members of the Association, after which Dr. A. F. Richards, of Sparta, President of the Association, took the chair.

A paper on "State Care of the Insane" was read by Dr. W. Scott Farmer, of Nashville, and discussed by Dr. R. E. Lee Smith, of Knoxville, Dr. O. Dulaney, of Dyersburg, and in closing by the essayist.

Announcement was made that through the kindness of the Abbott laboratories a number

of moving pictures on scientific subjects would be presented at intervals during the meeting.

A paper on "Tumors of the Kidney," by Drs. W. D. Haggard and H. L. Douglass, of Nashville, was read by Dr. Douglass and discussed by Dr. Jere L. Crook, and in closing by the essayist.

A motion picture was shown on "Normal and Abnormal Labor," by Dr. Ross, of the Abbott Laboratories.

The Association adjourned until 1:45 p. m.

Tuesday Afternoon, April 6.

The Association was called to order at 2 p. m. by Dr. A. W. Harris, at Nashville, Vice-President for Middle Tennessee.

A motion picture was shown by Dr. Ross, of the Abbott Laboratories.

A paper on "Ocular Manifestations as Diagnostic Aids" was read by Dr. E. C. Ellett, of Memphis, and discussed by Dr. Louis Levy, of Memphis, and Dr. J. J. Shea, of Memphis.

A paper was read by Dr. Jere L. Crook, of Jackson, on "Traumatic Musculo-Spiral Paralysis, Complicating Fracture of the Humerus." Discussed by Dr. Willis C. Campbell, Memphis, and Dr. E. T. Newell, Chattanooga, and in closing by the essayist.

Dr. E. O. Jenkins, of Clifty, then read a paper on "Some Unusual Manifestations of Malaria," which was discussed by Dr. J. W. MacQuillan, of Chattanooga; Dr. W. K. Sheddan, Columbia, and in closing by the essayist.

A paper was read by Dr. C. P. Fox, of Greeneville, on "The X-Ray An Aid to Surgery," which was discussed by Dr. H. H.

McCampbell, of Knoxville; Dr. W. T. Black, Memphis, and in closing by the essayist.

Dr. John M. Maury, Memphis, then presented a paper on "Radium in Gynecology," which was discussed by Dr. J. B. Neil, Gordonsville; Dr. E. T. Newell, Chattanooga, and in closing by the essayist.

A motion picture on "The Diagnosis and Treatment of Syphilis" was shown by Dr. G. A. Hays, Director of the Division of Venereal Diseases of the Tennessee State Board of Health.

Adjournment was taken until 8 p. m.

Tuesday Evening.

The Association was called to order at 8 p. m. by Dr. A. W. Harris, Vice-President, and Dr. A. F. Richards, President of the Tennessee State Medical Association, then delivered his presidential address.

A paper was read by Dr. E. T. Newell, of Chattanooga, on "The Treatment of Carcinoma and Fibroma of the Uterus, with Especial Reference to Radio-Active Elements." Dr. Newell's paper was discussed by Dr. John M. Maury, Memphis; Dr. J. B. Neil, Gordonsville; Dr. W. K. Sheddan, Columbia; Dr. J. Howard King, Nashville, and in closing by the essayist.

Dr. J. C. Brooks, Chairman of the Committee on Arrangements, announced that a "Dutch supper" would be served in the rotunda of the courthouse to members of the Association, this supper being given in honor of the Association by Morrison's of Chattanooga.

The Association adjourned until 9 a. m. Wednesday, April 7.

Wednesday Morning, April 7.

The Association was called to order at 9 a. m. Wednesday, April 7, by Dr. A. W. Harris, Vice-President.

A paper on "X-Ray Treatment of Malignant Tumors," was read by Dr. J. M. King, Nashville, and discussed by Dr. J. Howard King, Nashville, and in closing by the essayist.

Dr. L. E. Burch, Nashville, presented a paper on "Empyema and Its Surgical Complications," which was discussed by Dr. R. L. Sanders, Memphis; Dr. _____; Dr. H. H. McCampbell, and in closing by the essayist.

Dr. Seale Harris, Secretary of the Southern Medical Association, of Birmingham, Ala., was present as a guest and presented a paper on "Educating the Patient in the Treatment of Gastrointestinal Diseases."

Dr. C. N. Cowden, Nashville, presented the following resolution, and moved its adoption. "Be it resolved, by the Tennessee State Medical Association, that it is the sense of this body that a two-years' course in a student hospital is a sufficient period for training to make a competent nurse, and that nurses who have completed such a course should be recognized as trained nurses." Dr. Cowden's motion to adopt the resolution offered was seconded. Dr. Jere L. Crook, of Jackson, made a point of order to the effect that the question raised in the resolution had already been acted upon in the House of Delegates. The chair ruled that the motion was in order, and the motion was put and declared carried. Dr. Jere L. Crook called for a division. Dr. W. K. Sheddan made the point of order that the chair had announced its decision and that there was no appeal. Dr. Jere L. Crook arose to a question of personal privilege, and made the point that the President had put the motion to a vote without giving the Association an opportunity to discuss the resolution. The chair explained that he had no intention of rushing the motion through without opportunity for discussion. It was then moved by Dr. W. K. Sheddan that reconsideration be taken, and this motion having been seconded and duly put was declared carried. Dr. C. N. Cowden then reintroduced the resolution, moved its adoption and, after his motion was seconded, discussed the subject at some length. Dr. Jere L. Crook spoke in opposition. Dr. W. M. McCabe, of Nashville, stated that he did not believe that the resolution ought to be presented nor discussed, and made a motion that the resolution be tabled. The chair announced a tie vote. A division was called for, and the President announced the vote to

be 54 for tabling and 53 opposed and declared the motion carried. The Secretary stated that the President was in error in his statement of the point, whereupon the chair then declared the motion lost. A new vote was taken which resulted in a tie, 58 members voting in favor of the motion to table and 58 in opposition. The President declared the motion to table lost. The resolution was then discussed by Dr. L. E. Burch, of Nashville. Dr. Olin West moved that the whole matter be referred to the Hospital Committee of the Tennessee State Medical Association, in accordance with the action of the House of Delegates on the same question, and that this committee be requested to study fully the subject of the resolution and to report to the next annual meeting in Nashville in 1921. The motion was seconded. Dr. W. K. Sheddan made the point of order that there was already a motion before the house. The chair ruled that Dr. West's motion would be put and stated that the resolution was out of order in the general session of the Association. The motion to refer the subject to the Hospital Committee was carried.

A paper on "Cancer of the Stomach," by Drs. R. L. Sanders and J. J. McCaughan, of Memphis, was then read by Dr. Sanders and discussed by Dr. Seale Harris, of Birmingham, Ala., and in closing by the essayist.

Dr. W. K. Vance, Bristol, then read a paper on "The Etiology of Diabetes," which was discussed by Dr. J. H. Litterer, Nashville, and Dr. E. R. Zemp, Knoxville.

Adjournment was then taken until 1:30 p. m.

Wednesday Afternoon.

The Association was called to order at 1:30 p. m. by President Richards. Because of the fact that very few members were in the hall a recess of ten minutes was taken, after which Dr. Willis C. Campbell, of Memphis, read a paper on "A Method for the Treatment of Tibial Defects." Dr. Campbell's paper was discussed by Dr. R. W. Billington, Nashville; Dr. A. G. Nichol, Nashville; Dr. J. H. Revington, Chattanooga, and in closing by the essayist.

Dr. J. C. Brooks, Vice-President for East Tennessee, assumed the chair and announced the next paper to be by Dr. J. F. Gallagher, of Nashville, on "The Displaced Uterus." Dr. Gallagher's paper was discussed by Dr. Harlin Tucker, Nashville; Dr. W. K. Sheddan, Columbia; Dr. W. T. Black, Memphis; Dr. H. L. Fancher, Chattanooga; Dr. L. E. Burch, Nashville, and in closing by the essayist.

A paper was read by Dr. Wm. McCabe, of Nashville, on "Pelvic Infection," which was discussed by Dr. H. M. Tigert, Nashville, and in closing by the essayist.

Dr. E. H. Baird, of Dyersburg, presented a paper on "Ectopic Pregnancy," which was discussed by Dr. H. M. Cass, Johnson City; Dr. Jere L. Crook, Jackson; Dr. R. L. Sanders, Memphis; Dr. W. T. Black, Memphis; Dr. L. E. Burch, Nashville, and in closing by the essayist.

Dr. Hilliard Wood, Nashville, then read a paper, "Report of Foreign Bodies in the Trachea and Oesophagus," which was discussed by Dr. J. Walter McMahan, Maryville, and Dr. B. F. Travis, Chattanooga.

"Venereal Disease Control Work in Tennessee" was the subject of a paper read by Dr. G. A. Hays, Nashville, and discussed by Dr. S. S. Marchbanks, Chattanooga; Dr. H. M. Tigert, Nashville; Dr. W. A. Bryan, Nashville, and Dr. Olin West, Nashville.

Dr. H. M. Tigert, Nashville, read a paper on "Uterine Fibroids," which was discussed by Dr. J. M. King, Nashville; Dr. W. C. Dixon, Nashville, and in closing by the essayist.

Announcement was made of the banquet to be given at the Country Club at 7:30 p. m., and an adjournment was taken until 9 a. m. Thursday, April 8.

Thursday Morning.

Dr. A. L. Rule, of Knoxville, presented a paper on "A Plea for Better Clinical Diagnosis," which was discussed by Dr. W. K. Sheddan, Columbia; Dr. W. A. Bryan, Nashville; Dr. W. F. McManus, Chattanooga, and in closing by the essayist.

Announcement was made by the Secretary of the result of the election in the House of Delegates of officers for next year as follows:

Dr. L. L. Sheddan, Knoxville, President; Dr. George R. West, Chattanooga, Vice-President for East Tennessee; Dr. P. K. Lewis Doyle, Vice-President for Middle Tennessee; Dr. J. J. Shea, Memphis, Vice-President West Tennessee; Dr. C. J. Broyles, Johnson City; Trustee of the Journal; Dr. E. T. Newell, Chattanooga, Delegate to the American Medical Association; Dr. E. H. Baird, Dyersburg, Alternate Delegate, and Dr. Olin West, Nashville, Secretary, and five Councilors as follows:

Dr. C. P. Fox, Greeneville; Dr. J. A. Hardin, Sweetwater; Dr. G. E. Horton, Shelbyville; Dr. M. A. Beasley, Hampshire, and Dr. E. H. Baird, Dyersburg.

The paper of Capt. W. G. Stromquist, Associate Sanitary Engineer of the United States Public Health Service, on Malaria Control in Tennessee, was made a special order for 10:30 a. m.

The chair appointed Dr. W. J. Breeding, Sparta, and Dr. W. K. Sheddan, Columbia, to escort the newly-elected President to the chair. Dr. L. L. Sheddan, the new President, acknowledged his gratitude for the honor conferred upon him in his election to the presidency of the Tennessee State Medical Association, and then took the chair as presiding officer.

A paper on "Malaria Control in Tennessee" was presented by Capt. W. G. Stromquist, Associate Sanitary Engineer United States Public Service, Memphis, which was discussed by Dr. Olin West, and in closing by the essayist.

Dr. John B. Haskins, Chattanooga, read a paper on "Tubercular Peritonitis," which was discussed by Dr. Cooper Holtzelaw, Chattanooga; Dr. C. N. Cowden, and in closing by the essayist.

A motion picture was then shown by Dr. Ross, of the Abbott Laboratories.

Dr. E. Dunbar Newell, Chattanooga, read a paper on the "Thomas Splint and Rausohoff Lee Tongs in Treatment of Fracture of the Femur," which was discussed by Dr. J. H. Revington, Chattanooga, and in closing by the essayist.

Upon vote of the Secretary, a vote of thanks was given to the medical profession of

Chattanooga and to the Chattanooga Academy of Medicine and Hamilton County Medical Society for the splendid arrangements made for the meeting and for the delightful entertainment offered visiting members of the Association.

A paper on "Foreign Bodies in the Eye," was read by Dr. B. F. Travis, of Chattanooga, which was discussed by Dr. Frank T. Smith, of Chattanooga.

The Association then adjourned to meet in Nashville in April, 1921.

OLIN WEST, Secretary.

MINUTES EIGHTY-SEVENTH ANNUAL MEETING OF HOUSE OF DELEGATES, TENNESSEE STATE MEDICAL ASSOCIATION, AT CHATTANOOGA, APRIL 6, 7, 8, 1920.

Dr. A. F. Richards, President, called the House of Delegates to order at 2 p. m., April 6, 1920.

The Secretary called the roll of counties and the following delegates and members of the House of Delegates responded:

Dyer County, Dr. E. H. Baird; Greene County, Dr. J. B. Bell, Dr. C. P. Fox; Hamilton County, Dr. T. E. Abernathy, Dr. W. M. Bogart, Dr. F. J. Hackney; Jefferson County, Dr. B. M. Titsworth; Knox County, Dr. S. R. Miller, Dr. O. W. Hill; Madison County, Dr. S. M. Herron, Dr. Jere L. Crook; Maury County, Dr. M. A. Beasley; Monroe County, Dr. R. C. Kimbrough; Putnam County, Dr. J. T. Moore, Rhea County, Dr. W. P. McConald; Roane County, Dr. W. W. Hill; Gibson County, Dr. C. B. A. Turner, Dr. W. M. Sullivan County, Dr. W. W. Vaught; Tipton County, Dr. L. A. Yarbrough; Washington County, Dr. C. J. Broyles; White County, Dr. W. M. Johnson.

On motion duly made, seconded and carried the reading of the minutes of the last meeting was dispensed with and the minutes were adopted as published in the Journal.

The chair then declared a recess for five minutes in order that the delegates might

select their nominating committees from each grand division of the State.

The chair then called the meeting to order and the selection of the following nominating committee was announced:

East Tennessee: Dr. C. J. Broyles, Dr. Oliver Hill, Dr. Edward Newell.

Middle Tennessee: Dr. W. M. Johnson, Dr. M. A. Beasley, Dr. J. T. Moore.

West Tennessee: Dr. S. M. Herron, Dr. E. H. Baird, Dr. C. B. A. Turner.

The Secretary then read his report.

On motion duly made, seconded and carried the Secretary's report was accepted as read. (See April Journal).

The Secretary then read the report of the Treasurer.

On motion duly made, seconded and carried the report of the Treasurer was ordered referred to an auditing committee. (See April Journal).

The Chair appointed the following auditing committee: Dr. J. T. Moore, from Middle Tennessee; Dr. O. W. Hill, from East Tennessee; Dr. O. Dulaney, from West Tennessee.

Reports of Standing Committees were called for.

Committee on Public Policy and Legislation.—The Chairman of this Committee not being present, Dr. O. Dulaney presented a resolution in regard to the appointing of a Legislative Committee, but was ruled out of order.

Committee on Scientific Work.—Dr. Olin West, Chairman, submitted the report of the the program as arranged, which was accepted.

Committee on Memoirs.—No member of this committee being present the chair announced that this report would be called for later.

Committee on Medical Defense.—Dr. S. R. Miller, Chairman, then submitted the report of the Committee on Medical Defense.

On motion duly made, seconded and carried, it was ordered that this report be accepted and that consideration of the resolution therein be deferred until Wednesday, April 7, and the committee be continued. (See April Journal for this report).

The following proposed amendments to the Constitution and By-Laws of the Tennessee State Medical Association were offered by Dr. A. F. Richards, to be acted upon at the next regular annual meeting of the House of Delegates.

Be it resolved, that Section I, Article 8, of the Constitution of the Tennessee State Medical Association be amended to read as follows: "The officers of this Association shall be a President, Speaker of the House of Delegates, three Vice-Presidents, a Secretary, a Treasurer, three Trustees of the Journal, and ten Councilors, one of whom shall be from each congressional district of the State."

That Paragraph 3 of Section II be amended to read as follows: "The President, Secretary, and Speaker of the House of Delegates shall be members of the Council, ex-officio, and any five Councilors shall constitute a quorum."

That Chapter 6, Section I of the By-Laws of the Tennessee State Medical Association be amended by striking out the words "and of the House of Delegates."

That Chapter 6 of the By-Laws be amended by adding thereto the following:

"Section 5. It shall be the duty of the Speaker of the House of Delegates to preside at all meetings of the House of Delegates and to exercise all the powers and perform all the duties heretofore devolving upon the President of the Association when presiding over the House of Delegates."

The House of Delegates then adjourned until 8:30 a. m., April 7.

Tuesday Morning, April 7th.

The House of Delegates was called to order by President Richards at 8:30 a. m., April 7, 1920.

The minutes of the previous meeting were read and approved.

The following Delegates and members of the House of Delegates not present at the previous meeting were recorded as present: Blount County, Dr. J. W. McMahan; Cocke County, Dr. L. S. Neas; Davidson County, Drs. C. N. Cowden, H. M. Tigert, W. H. McCabe, J. F. Gallagher; Giles County, Dr. G. C. Grimes; Hamblen County, Dr. C. T. Car-

roll; Hamilton County, Dr. E. T. Newell; London County, Dr. H. A. P. Harrison; Morgan County, Dr. W. E. Gallion; Rutherford County, Dr. M. B. Murfree; Warren County, Dr. R. L. Maloney; Weakley County, Dr. T. B. Wingo; Washington County, Dr. H. M. Cass; Campbell County, Dr. L. M. Scott; Bedford County, Dr. T. B. Ray; Franklin County, Dr. J. P. Grisard; McMinn County, Dr. J. O. Nichols; Putnam County, Dr. Z. L. Shipley; Johnson County, Dr. W. W. Vaught; Shelby County, Drs. E. C. Ellett and W. T. Black.

The consideration of the resolution offered by the London County Medical Society and submitted through the Committee on Medical Defense was then entered into. After some discussion of the resolutions (See resolution in report of Committee on Medical Defense in April Journal), and upon motion duly seconded, put and carried, the resolution was tabled.

The following amendment to the By-Laws was offered by Dr. E. T. Newell, Chattanooga, and was ordered to lie on the table until the meeting of the House of Delegates on the following day:

Be it resolved by the House of Delegates of the Tennessee State Medical Association, that Chapter IX, Section 1, of the By-Laws be amended as follows: By substituting \$4.00 per capita for \$2.00 per capita" in the first line of Section 1 of Chapter IX of the By-Laws.

Dr. W. Scott Farmer presented the report of the Committee on Hospitals and the report was ordered received and filed. (See April Journal for report of Hospital Committee).

Dr. C. N. Cowden moved the adoption of the following: "It is the sense of the House of Delegates of the Tennessee State Medical Association that a training course for nurses of two years is sufficient.

The motion of Dr. Cowden received a second. Dr. Jere L. Crook, Dr. E. C. Ellett, Dr. O. Dulaney, Dr. W. P. McDonald, Dr. S. R. Miller, Dr. W. M. McCabe, Dr. J. F. Gallagher, Dr. W. T. Black, Dr. C. N. Cowden and others discussed the subject of the motion.

Dr. Jere L. Crook moved to amend by substituting "three years" for "two years," and this motion was seconded.

Dr. McCabe moved to table the amendment offered by Dr. Crook. Motion duly seconded, put and carried.

Upon motion duly seconded, put and carried, Dr. Cowden's motion was declared tabled. A division was called for and the motion to table, was carried.

Upon motion of Dr. S. R. Miller the Hospital Committee was instructed to study the problems of the supply of student nurses and the training of nurses and to report to the House of Delegates at the next annual meeting.

The House of Delegates then adjourned until 2 p. m.

Wednesday Afternoon.

The House of Delegates was called to order at 2 p. m. by President Richards.

The following amendments to the constitution and by-laws were offered by Dr. S. R. Miller and ordered to lie over until the next annual meeting:

Amend Article VIII, Section 3 of the Constitution as follows: After "except the Treasurer" add "and the Councilors." After "no person" add "except the Trustees and Councilors." At the end of the section add: "The Councilors shall be elected on the second day of the annual session. Nominations shall be made by any member of the House of Delegates and election may be by acclamation."

Amend Chapter II, Section 1 of the By-Laws as follows: Strike out "second" and substitute "first."

Amend Chapter V, Section 1 of the By-Laws as follows: After "all elections" add "except the Councilors." At the end of Section add "except the Councilors."

Amend Chapter V, Section 3 of the By-Laws as follows: After "election of officers" add "except the Councilors." At the end of the Section add: "The five Councilors shall be elected for two years on the second day of the annual session and, if practicable, immediately following the Councilors' reports."

Amend Chapter VII, Section 1 of the By-Laws as follows: Strike out "daily." After "It shall meet" strike out "on the last day of the annual session of the Association" and add "after the election of Councilors on the second day of the annual session."

The report of the Delegates to the American Medical Association was called for but was deferred.

Reports of Councilors were then presented by Drs. C. P. Fox for the First District, Dr. S. R. Miller for the Second District, Dr. J. A. Hardin for the Third District, Dr. Z. L. Shipley for the Fourth District, Dr. M. A. Beasley for the Seventh District, Dr. W. T. Black for the Tenth District. The report of Dr. W. C. Dixon, Councilor for the Sixth District, was read by the Secretary and the report of Dr. A. B. Dancy for the Eighth District was read by Dr. S. R. Miller, Chairman of the Board of Councilors.

The report of the Auditing Committee stating that the Treasurer's report had been examined and signed in approval by the committee was made by the Secretary, the report accepted and the committee discharged.

The House of Delegates adjourned to meet at 8 a. m., Thursday, April 8th.

Thursday, April 8, 1920.

The House of Delegates was called to order at 8:20 a. m. Thursday, April 8, by President Richards.

The presence of a quorum was announced by the Chair.

The minutes of the previous meetings were read and approved.

The report of Delegates to the American Medical Association was made verbally by Dr. E. T. Newell.

The report of the Trustees of the Journal was made verbally by Dr. C. J. Broyles who called attention to the increased cost of the Journal, the necessity for increasing the salary of the stenographer and clerk in the office of the Journal, and the constantly increasing cost of all supplies necessary for carrying on the business of the Association. The scarcity

of scientific papers for publication in the Journal during the past year was also referred to.

The resolution offered by Dr. E. T. Newell providing for amendment of Chapter IX, Section 1 of the By-Laws which had lain over from the previous day was then taken up and Dr. Newell moved adoption. Seconded.

Dr. O. W. Hill moved to amend by substituting "\$3.00" for "\$4.00." Seconded.

A delegate moved to table the amendment offered by Dr. Hill, and upon this motion receiving a second, the motion was put and carried.

The Secretary urged careful consideration of the matter under discussion and Drs. E. T. Newell, O. W. Hill, S. R. Miller, W. P. McDonald, A. G. Nichol and others spoke to the subject.

The motion of Dr. Newell for the adoption of the resolution providing for an increase from \$2.00 to \$4.00 for dues and subscription to the Journal was put and carried.

The Secretary called attention to the necessity of providing means for the collection of the increased dues.

Upon motion of Dr. O. W. Hill, duly seconded, put and carried, it was ordered that no additional dues should be collected until January 1, 1921.

Upon motion of Dr. S. R. Miller, duly seconded, put and carried, the House of Delegates authorized the Secretary and the Trustees of the Journal to borrow such sums of money as may be needed to cover any deficit which may be created by the cost of publication of the Journal during the current year.

Dr. O. W. Hill, Secretary of the Nominating Committee, presented the report of that committee as follows:

"Your Nominating Committee desires to present the following names to be voted on in the election of officers:

For President: Dr. L. L. Shedd, Dr. W. K. Vanee, Dr. H. P. Larimore.

For Vice-Presidents: Dr. Geo. R. West, Dr. Powell K. Lewis, Dr. J. J. Shea.

For Secretary: Dr. Olin West.

For Trustee of the Journal: Dr. C. J. Broyles.

For Delegate to A. M. A.: Dr. E. T. Newell.

For Alternate Delegate: Dr. E. H. Baird.

For Councilors: First District, Dr. C. P. Fox; Third District, Dr. J. A. Hardin; Fifth District, Dr. G. E. Horton; Seventh District, Dr. M. A. Beasley; Ninth District, Dr. E. H. Baird.

Election of officers was then entered into and the following were declared elected:

President, Dr. L. L. Shedd, Knoxville.

Vice-President for East Tennessee, Dr. Geo. R. West, Chattanooga.

Vice-President for Middle Tennessee, Dr. Powell K. Lewis, Doyle.

Vice-President for West Tennessee, Dr. J. J. Shea, Memphis.

Secretary and Editor of the Journal, Dr. Olin West, Nashville.

Trustee of the Journal, Dr. C. J. Broyles, Johnson City.

Delegate to American Medical Association, Dr. E. T. Newell, Chattanooga.

Alternate Delegate, Dr. E. H. Baird, Dyersburg.

Councilors, Dr. C. P. Fox, Greeneville, for the First District; Dr. J. A. Hardin, Sweetwater, for the Third District; Dr. G. E. Horton, Shelbyville, for the Fifth District; Dr. M. A. Beasley, Hampshire, for the Seventh District; Dr. E. H. Baird, Dyersburg, for the Ninth District.

There being no further business, the House of Delegates adjourned.

A. F. RICHARDS, President.

OLIN WEST, Secretary.

PRESIDENTIAL ADDRESS*

By A. Frank Richards, M. D.,

President State Medical Association, Sparta.

Mr. Chairman and Gentlemen of the Eighty-seventh Session of the Tennessee State Medical Association:

I shall take the first opportunity to thank you for the highest honor the profession of the State can offer upon one of its members,

*Delivered before the Tennessee State Medical Association at the annual meeting at Chattanooga, April, 1920.

an honor wholly unmerited. To be the recipient of such recognition, when I fully realize that there are so many others in the State who are more entitled to it, makes me feel all the more appreciative.

I trust that with the efforts of our faithful and efficient Secretary and the working co-operation of the organization, I shall be able to retire from the presidency without having lowered the standards set by my predecessors, and that this session may be one of the most profitable and pleasant in our entire history.

I will obey the first request made of me after my election one year ago, and that was to make my presidential address short.

The changes which this organization has undergone have been many. Eighty-seven times has the Tennessee State Medical Association met in annual session. Several generations of our professional forbears have come and gone in these eighty-seven years. It is very interesting to note the many changes which have taken place within these years. If we go back to the days of Hypocrites and read of the discoveries and developments incident to that age and compare them with the last hundred years, or the life of the Tennessee Medical Association, we find that the comparison only magnifies the strides and brightens the discoveries made within our day and generation. Up to the days of Harvey all the facts that were known of medicine and disease were crude and only known in a gross way, but as time passed truths were proven, and little by little the light began to break in more and more upon the medical world until we see ourselves in the full daylight of medicine and surgery.

The history of medicine in the seventeenth century reads like fiction, the description of diseases and the formulary for their medicine is unbelievable. One of the greatest problems which confronted the profession in its earliest existence was superstition, and I am sorry to say that until this good day there are licensed physicians in our State who carry to the sick room much superstition and ignorance. They do not belong, however, to the Tennessee State Medical Association. At the other extreme we have to contend with the en-

thusiast, the would-be inventor and discoverer. We are kept busy deciding on what we can believe and do in our practice with safety. However, the enthusiast has his place in medicine. "It is he who fits his key to the right hole first and easiest." The best way to combat ignorance and superstition is by **medical organization and the education of the public.**

There is a kindred evil which also has its drawbacks to our progress in the disease known as graft and greed, which creeps into our lives and saps the real scientific spirit out of us. The average doctor, in short, has not time to think of the real things of life. He knows theoretically, just as every intelligent man knows, that wealth, instead of promoting peace of mind, in nine cases out of ten undermines all happiness. The possession of ten thousand dollars leads to the desire for a hundred thousand, and a hundred thousand immediately suggests a million. Or, perhaps, the ownership of a store or factory creates an obsession for monopoly, so the game must be played to the limit no matter what ideals have to be sacrificed. Thus with such an over-ambitious nature, each added possession but adds to his voracity; realization brings only discontent, and again he sets out after a transformed and yet more elusive will-o'-the-wisp.

There is a tremendous satisfaction in performing each duty that presents itself to the best of our ability. It may be a remarkable feat of courage or skill or cunning to make a million dollars, but there is less honest satisfaction in it than that which comes from saving one life. Yet so false have become our standards that many a physician, formerly honest and even altruistic, has come to look upon the relief of suffering or the saving of a life as merely incidental to the earning a fat fee. And from honest greed, if there is such a thing, the step is but a short one to dishonorable practices and deceit. Like all who have lapsed into rank commercialism, he finds that he must employ unfair means if he would achieve the success he craves. The cure for these diseases is altruism in medical organization and a higher idealism in medical education.

It has been said "If a man can write a better book, preach a better sermon, or make a better mouse trap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door." Rochester, Minn., is a shining example of this truism in our profession. Again, if you have a dollar and I have a dollar and we exchange we are neither benefited we have no more than we had before the transaction, but if you have an idea and I have one and we exchange, we are both benefited, having two ideas where each only had one. Medical organization brings us together and like rubbing diamonds together to polish them, we may also be brightened by contact.

There are many things that the activities of the Tennessee Medical Society can accomplish, and these are some of them:

Nursing: The nursing problem has become very acute. There is a great need for more nurses. We have educated the public to use them now, and the supply is inadequate. The training schools are inadequately supplied. The cause is two-fold. In the first place, the course of training of three years is too long for actual necessities. Splendid nurses can be educated in two years. Young women are loth to take up a profession that requires so long and such rigorous training, whereas they can go into commercial pursuits and in a few months earn a fair competence. The pay of the nurse is well earned, but unfortunately the very people who need nurses most, the middle classes, are, in many instances, unable to afford them. If the nurse's preparation was not so long and did not require so much time, the charges need not be so great, more women would volunteer for this work and the ideals of the profession would not be commercialized. The duty of every physician in the State should be to encourage all well educated, able-bodied and intelligent young women who wish a career of usefulness, to enter the nursing profession. We should also combine our efforts to obtain the two years' training course for this state so that a larger supply of nurses could be had for a maximum amount of good throughout the families of this State.

At the present time, as is well known, it is almost impossible to obtain an adequate supply of nurses. It is very regrettable that nurses dislike very much to leave the large cities. They must be like physicians and respond to the call of duty wherever it is heard. I would recommend that a special committee for the investigation of the nurse problem and recommendations for this and subsequent sessions be created, to the end that the people of our State shall receive the most skillful nursing at the hands of a high grade, and idealistic class of humanitarian nurses.

Venereal Prophylaxis. There is no more urgent duty before the medical profession of Tennessee than active leadership and participation in the stamping out of venereal diseases. It has for long been our province only to treat them, but prevention is more important and infinitely better. Our views regarding the possibilities of preventing this great scourge of mankind have been greatly enlarged by the experiences in the army. There were employed not only all moral influences, and education of the importance and practicability of chastity, but depicted the dangers of infection and the results of infection. In addition, they employed actual medical prophylaxis so that several millions of men know now that syphilis and gonorrhea can be prevented by 3 per cent calomel ointment and 2 per cent protargol injection. This ought to be known by every citizen in the land, just as they know that vaccination will prevent smallpox. Moreover, the great pharmaceutical houses ought to be encouraged to put out such prophylactic packages which would be standardized, widely advertised, and could be obtained at any drug store.

The wonderful efficiency of these prophylactic measures was borne out, not only in the camps of this country, but in France, where the venereal rate was reduced from something like 86 per thousand down in some instances to 2 and 3 per thousand. It ought to be as low in civilian life, if not lower. Physicians should take the lead in this matter. Prophylactic stations should be established in every large city by the municipal authorities under the local or State Board of Health, perhaps in conjunction with U. S. Bureau of Public Health. This

is one of the greatest and most crying needs of civilization and is a burning necessity in this State and a great work for the members of the Tennessee State Medical Society. The division of venereal disease control of our State Board of Health in making progress in spite of the disaffection of a relatively large part of the medical profession of the State. This division has secured reports from five thousand cases of venereal disease, and has been directly instrumental in securing proper treatment for large numbers of infected persons.

Public Health: The greatest weakness of public health in Tennessee is to be found in the fact that we have no efficient local or county machinery. There is only one full time local or county health officer in the State. The health officers are paid extremely meager salaries and must secure their income from their private practice. The consequence is that they have but little time to devote to public health matters. The practicing physician, as a general rule, does not like to report to another practicing physician. The health officer who must make his living practicing medicine is slow to enforce health laws and regulations among the people from whom he must gain his livelihood. The average practicing physician is not at all trained in public health administration.

Even if our local and county health officers were paid princely salaries, and even though they were highly trained in public health administration, none of them could make a success as a health officer unless provided with the necessary assistance. It is impossible for one man to cover any very large territory to ascertain just what insanitary conditions exist and need correction, and to carry on the multitudinous duties which devolve upon the modern health officer.

The public health service of this day must first of all have records, and these records must refer definitely and comprehensively to existing conditions with respect to local sanitation, disease incidence, mortality statistics, birth statistics, water supply and sewage disposal, conditions affecting the health of school children away from their homes, etc. To ascertain the facts, assistance must be pro-

vided for the health officer. He must have an office in which records can be kept, and he must have some one to keep the records and attend to office detail. An inspector, or inspectors, are essential, both in ascertaining sanitary facts, and in administering laws and regulations designed to correct insanitary conditions, and to apply restrictive and preventive measures. The visiting public health nurse is also essential in a modern health department.

The educational work of a legitimate nature that a health officer, who has a properly equipped department under his direction, can do is of an immense general value, but under our present arrangements any considerable amount of such work is an impossibility. A bill was introduced in the last Legislature designed to enable counties to establish county health departments. This bill provided that a county and the county town, or towns, could co-operate in the maintenance of such a department. It was impossible even to get this bill considered in the Legislature. It will be re-introduced at the next meeting of the general assembly. Every member should explain the wisdom and value of this plan to his representative.

Vital Statistics Registration: Our birth and death registration, especially birth registration, in this State is incomplete. I do not hesitate to say that there is no matter which so vitally affects the general welfare of the individual and the State as does this thing of birth and death registration. A great many of our physicians are extremely negligent in the matter of reporting births. Some of them insist that the twenty-five cent registration fee should be paid directly to the doctor. My own observation and experience leads me to believe that this would not increase our registration in any material degree. It would be highly impracticable for the State Board of Health to undertake to keep the very large number of accounts that would be made necessary if individual physicians were to be paid for birth certificates. You know as well as I do, that the average doctor is extremely dilatory concerning the matter of perfecting records, and of making reports of any nature whatsoever. I am informed that the State Board of Health is anxious, indeed, to make

its vital statistics of real value. This, of course, can be done only as the physicians co-operate in the matter of death and birth registration.

Sanitary Engineering: A very important division of any modern health department is the sanitary engineering division. We now have a sanitary engineer, who is loaned by the United States Public Health Service. His salary and expenses are paid by the United States Government. Of some thirty public water supplies investigated by this engineer and our laboratory, only six have been shown to be providing water that is reasonably safe. My own fair city is a shining example of the rank injustice that is being perpetrated upon thousands of people of this State by privately-owned, or for that matter, municipally-owned water supplies.

The co-operation of the International Health Board and the United States Public Health Service has been secured in a movement designed to enable the State Board of Health to demonstrate the possibility of the control of malaria. Such demonstrations have already been made in Arkansas, in Mississippi, and to a lesser extent in Tennessee. Where adequate facilities have been provided, this work has resulted in a reduction of malaria to a degree that is almost unbelievable by those who have not witnessed the work. I do not see why we cannot do the same things in Tennessee that have prevented malaria and other communicable diseases in other states. Shall we have it; will you help?

The Workman's Compensation Act: The Workman's Compensation Act is intended to take care of the employee in case of injury received while at work for an employer. The idea is not a bad one, but as it affects the doctor, whose services cannot be dispensed with, we see a rank injustice done him. It requires the services of the doctor, all medicines, crutches and apparatus to be furnished for \$100 or less without regard to the case.

I would recommend that the law be so amended that the doctor would be paid such fees as maintain in the locality where the services are rendered, and would further suggest that the legislative committee present this to the next Legislature.

Rural Sanitation: Rural sanitation seems to me to be the key to health improvement. I am told that the State Board of Health is making some progress along this line, the central feature of which is the control of typhoid fever and other soil borne diseases in rural areas. Incidentally this department has shown through medical inspection of school children that a relatively large proportion of the children of this State are suffering from physical defects and from the effects of preventable disease. This department has also established the fact that it is relatively easy to secure relief for many of these children by the simple process of advising their parents of the findings that are made upon examinations and referring the children to their own physicians for treatment.

It is apparent to any one that a large mass of our population are subjects of diseases of various sorts, which lessen their efficiency, and ultimately produce total disability and death, whose lives could be made much more efficient and prolonged in comfort if these could be brought under the care of an intelligent physician at a time when proper treatment could be given with reasonable hope of success.

We find that there have been many reforms proposed and many laws passed as a result of medical organization, but there is a greater work to be accomplished, that of law enforcement. It is a lamentable fact that there are many counties yet selling out the medical and surgical care of the poor to the lowest bidder, which of course gets only what the price buys. There is a greater work in the line of health care in the rural districts. The time is now here for the profession to put forth an effort to carry to perfection a plan whereby no man can hold a public health office of any kind who does not have the endorsement of the profession of his state and county.

The question of dealing with sectarian medicine and quackery rests in the hands of organized scientific medicine, and I believe the only solution of this question is for the State to take charge of, and care for, the entire population who are unable to care for themselves from a financial or mental point of view. The neglect of the poor opens the gateway to the

charlatan and quack, gives them an opportunity to get material on which to work, and thereby advertise their cult to the detriment of the lives and well being of the community.

The recent great world war has demonstrated to us that scientific medicine and surgery stands in the American mind separate and distinct from all cults and schisms of the earth. Not one cult was recognized by this great government of ours in the great world war. The law of our states recognizes all kinds of religious practices as well as osteopathy, and chiropractics and many other fakirs are preying upon our people in spite of our law. It seems to me the country out of war has as little need of these cults as it had during the throes of war.

Patent Medicines: Another momentous question for organized medicine to handle is that of the patent medicine and the liberal advertising of the same through the press and sending it through the mails. This to my mind is the worst sin perpetrated upon our civilization. Here is more harm done, more health destroyed, more money extracted from the poor, and more lives lost in this way than in any other crime perpetrated by any protected class in our government. If it were possible for us to rid our country of this one evil we would have accomplished an immeasurable amount of good for the people. I believe we will have taken a great step forward when each county has its public health nurse in the schools, to teach, not only sanitation and prevention, but to teach the coming generations **away** from their slavery to patent nostrums. I would also recommend that the United States Patent Office, so far as it pertains to medicine and public health be put in charge of medical men, or in charge of the long-looked-for Public Health Bureau. In other words let all things medical be controlled by scientific medical men.

Tuberculosis: We propose to say that tuberculosis is curable, is preventable. Is this correct? If it is, how are we demonstrating to the world that it is true? Certainly we cannot demonstrate it until we have the machinery in our hands for the control of the victims of the disease. With a proper health bureau and money to execute the plans, it would then

be up to the profession to prove the statement true. But with a Legislature and Congress more friendly to rich medicine manufacturers of the country than they are to the scientific medical mind, our efforts are rendered inert.

Profession in War: Who in all this great government did more in the world war than did our profession? In all the press of the world where is the publication, the club or organization that has taken the risk to criticise scientific medicine? Who stood closer to the soldier boy, who took greater risk to life or limb, or who was better prepared in all the world to direct the "War God" and steer him past the breakers of so many devastating epidemics and limb-destroying devices than the doctor?

"Between the living and the dead, the Army surgeon stands,

And life, oft hanging by a thread, lies in his skillful hands.

A soldier at his country's call, he draws no faltering breath

But fights the mightiest foe of all—the final victor—Death.

"This son of science, rarely found applauding crowds before,

For whom no trumpet-blasts resound, too many oft ignore;

Yet he, upon the storm-swept plain intent alone to save,

And wounded, scorning all his pain, is bravest of the brave."

Many organizations met us in camp and on the battlefield, hearts full of love and sympathy and their hands laden with physical blessings we needed, but for the lack of information and training along health and sanitation lines, they could not be compared to the life-saving doctor. Is scientific medicine needed less in times of peace than in times of war?

The world's greatest benefactor, second to none but the tiller of the soil, is our own, our beloved profession.

The one question of tuberculosis alone, which casts the United States no less than \$500,000,000, to say nothing of 150,000 lives every year, is sufficient within itself to put us thinking. Education is proper and one great help to the end of eradicating the great white plague, but it alone cannot succeed? The

public should make an irresistible demand on Congress to pass the necessary laws for a Division of Tuberculosis in the Public Health Service, that all the agencies may be co-ordinated to looking to its eradication. It will take too many generations to complete the work by education alone. It will cost too many lives as well as money in the process.

Why all this? It is to suggest that the Tennessee profession has its responsibilities to meet as men and members of a great calling.

Now to my mind there is no other way by which we can succeed except through this organized effort. The three thousand, five hundred doctors in Tennessee should come together in one compact body, and move as one man in our Legislature, in our public health matters, and make ourselves felt in national questions as a unit in these United States of ours. But the character of our organization and its standing and influence in the community must inevitably be determined by the character of the men who compose it.

"God give us men; a time like this demands, Strong minds, great hearts, true faith, and ready hands,

Men whom the lust of office does not kill;

Men whom the spoils of office cannot buy;

Men who possess opinions and a will;

Men who have honor and who will not lie;

Men who can stand before a demagogue;

And scorn his treacherous flatteries without winking;

Tall men, sun-crowned, who live above the fog,

In public duty and in private thinking."

MALARIA CONTROL IN TENNESSEE.*

By W. G. Stromquist,

Associate Sanitary Engineer, U. S. Public Health Service.

Habit is strong with us and the human mind is so constituted that it cannot always see things in their true perspective. Conditions which surround us constantly, and things which we see from day to day, fail to impress us because we have grown so accustomed to them. This fact is largely responsible for the limited development of malaria control at the present time. One case of yel-

*Read at annual meeting of Tennessee State Medical Association, Chattanooga, April, 1920.

low fever will throw a community into turmoil, but a hundred cases of malaria will pass unnoticed. Malaria has come to be considered as an affliction which we must always have with us. It is the greatest health problem of the South today, not only a problem of public health, but one that has also its social, economic and educational aspects.

Its mortality rate is not a true index of the great loss caused by malaria, for it is rarely a fatal disease. The result of malaria is a lowered vitality which increases susceptibility to other diseases; a retarded physical and mental development of the infected child; backward communities which remain so because of their unprogressive malarial inhabitants; financial loss due to decreased production of farms, lumber and cotton mills, and other industries because the men who work in these industries lose time and have their efficiency lowered by malaria.

After the relation between malaria and the Anopheline mosquito had been established, the first extensive control work was done at Havana. We are all familiar, to some degree at least, with the work done at Panama, and know that the construction of the canal was made possible only by the elimination of malaria and yellow fever. As examples of malaria control in other countries may be mentioned that at the Suez canal and in the Federated Malay states.

In spite of the excellent demonstration made at Panama, comparatively little has been done in this country to control the disease, and we have continued to pay a tax estimated as high as one billion dollars per year for the privilege of having chills.

The work in this country before our entry into the great war was in the nature of studies of the efficacy of different methods of control, rather than an attempt at a comprehensive attack on the problem as a whole. Some splendid demonstrations were made, which proved that malaria can be controlled at a reasonable cost and that so doing results in improved health conditions and increased prosperity.

At Crossett, Arkansas, the first year's work resulted in a 72 per cent reduction of malaria. A cotton mill at Roanoke Rapids, Va., inaugurated an anti-malaria campaign which

in one season reduced the doctors' malaria calls from an average of fifty per day to one per day, and increased the production of the mill 30 per cent. The manager of the mill stated that the expenditures for malaria control yielded the quickest and most enormous dividends of any investment he had made.

With a great number of training camps and war industries located in malarious regions it was imperative that control measures be adopted so that our army would not be beaten by malaria before it had a chance at the Germans. The work in the cantonments was conducted by the Sanitary Corps; in the civilian territory surrounding the camps, it was under the direction of the Public Health Service, co-operating with state and local health authorities. A recent report of the surgeon-general of the army states that in a total of about three and a half million men there were 14,087 cases of malaria and 31 deaths. Had the same malaria rate prevailed as during the Spanish-American war there would have been 1,906,066 cases and 5,595 deaths. This shows only the result among the officers and enlisted men and does not include the civilian population in the protected areas, where reliable records are not available.

The primary object of the war-time malaria control measures was the protection of our fighting forces. The results have been stated. The benefit to the communities affected were of like proportion and, with few exceptions, the work which was begun as a war measure has been continued as an obviously essential peace program. This will undoubtedly be the important and more lasting result of the extra-cantonment malaria control.

Gulfport, Miss., was one of these communities. As a result of the anti-malaria campaign a large factory, which with subsidiary plants, is expected to bring about 15,000 people to Gulfport, has located there. Other towns offered as good, or better, inducements in the way of transportation and busses, but Gulfport was chosen on account of its health conditions and because the management knew that their labor forces would not be decimated by malaria.

The examples of successful campaigns which have been mentioned above have con-

sisted almost entirely of mosquito eradication measures. By this method the transmitting agent of the disease is eliminated. Three other methods are possible: the protection of non-infected persons from infected mosquitoes by screening; preventing the infection of mosquitoes by treating infected persons, and by keeping such persons under mosquito bars, and in screened houses; immunizing people against malarial fever by quinine.

The most desirable method is that of mosquito eradication.

Such a campaign also gains popular fancy by the elimination of the mosquito pest. It is, however, not always economically feasible for drainage to destroy mosquito breeding places may be too expensive.

This is generally true of rural districts, and malaria is primarily a rural disease. In sparsely populated areas mosquito eradication is generally too expensive in proportion to the number of people benefited, and one or more of the other methods must be used.

As examples of control measures in rural sections by the use of the latter methods should be mentioned the work near Lake Village, Ark.; and in Bolivar and Sunflower counties, Mississippi. In the Arkansas demonstration, screening was used in one group of plantations, and in a second group the inhabitants were given immunizing and sterilizing doses of quinine. The Mississippi rural work consisted of treating malaria carriers.

Thus is given a brief survey of the malaria problem. What is the situation in Tennessee?

In making a study of malaria in Tennessee, as well as in other states, the first fact observed is the lack of records of its prevalence. Mortality records are fairly complete but morbidity records are so incomplete and unreliable as to be absolutely worthless, and in attempting malaria control, morbidity, rather than mortality records are desired. To make an intelligent and effective campaign against any disease, a knowledge of its prevalence and distribution is essential.

In general it may be said that malaria is prevalent in most communities of West Tennessee, but only in isolated sections of other parts of the State. The low bottom lands and

swampy areas of West Tennessee provide favorable conditions for the propagation of Anopheleline mosquitoes. An estimate of the relative amount of malaria infection cannot be attempted, because of the lack of records, but a few instances can be cited as an indication of the seriousness and importance of the condition.

When it was proposed to locate Park Field near Memphis, a survey of the territory showed that in every family in that rural area one or more persons were infected with malaria. In a health survey conducted by the State Board of Health in a community of about 700 inhabitants about 20 per cent gave a history of malaria. In another town a survey of a cotton mill village was made and malaria histories were recorded in 37 of 49 families. In some of the communities studied, the physicians state that about 75 per cent (as a conservative estimate) of their summer practice is concerned with malaria. Are progress and prosperity possible under such conditions? That there is urgent need for malarial control in this state is obvious.

Malaria control work in Tennessee has been limited to four areas. In 1917, the City of Memphis inaugurated a campaign by mosquito eradication, which was supplemented with work done by Shelby County in the suburban sections outside the city limits. As war-time measures control work was carried on at Millington, for the protection of troops at Park Field; at Nashville, to protect the workers at the powder plant, made necessary by the importation of large numbers of malarial laborers, and at Chattanooga to safeguard the health of the men in training at Fort Oglethorpe. Practically complete control of the disease was effected.

An effort is being made to make a systematic and comprehensive fight against malaria. The plan has been prepared by the boards of health of the states in which malaria is prevalent, the International Health Board and the U. S. Public Health Service. With small personnel and limited funds available, as compared with the great amount of work to be done, only a small beginning has been made. In each state a number of towns will be chosen for making demonstra-

tions of malaria control by mosquito eradication. In choosing these towns, several factors will be considered, mainly, the prevalence of malaria, the relative cost of the work, and the willingness of the town to provide funds for the work. It will be necessary for the communities themselves to bear the greater part of the expense, but some financial aid will be given by the State Boards of Health and the International Health Board. The Public Health Service will furnish sanitary engineers, or other men trained in such work, to organize and direct the anti-malaria campaigns. The purpose is to use the towns where successful campaigns have been conducted, and it is our plan to make them all successful, as examples for other towns to follow.

It has been stated that malaria is a rural disease, so why should this work be done in small towns? Because it is considered best to begin the work where the greatest possible number of people will be benefited with the least expense.

Malaria control is not entirely a medical problem. Mosquito eradication measures are largely an engineering problem. In organizing an anti-malaria campaign, the services of an experienced promoter and press agent would be invaluable. But the physician has an important part to play, aside from the treatment of malaria patients who come to him.

First of all, he should report all cases of malaria which he treats to the state health officer or his agent. Only when accurate records are obtained can an intelligent campaign be conducted against the disease. The reporting should be simplified as much as possible, for the doctor has little time for clerical work. A printed form on which he can insert, once a month, the name of the town and county, the month, and the number of cases treated, white and colored, with the signature of the doctor, would suffice. This would require only five items and the physician's signature to be inserted on the card and it would enable the state health officer to determine the prevalence of the disease in the State.

State health officers will undoubtedly receive stronger support from the medical pro-

fession if they try hard to make the forms which they wish doctors to fill out as short and simple as is humanly possible.

The physician, better than the man of any other profession, is in a position to show the commercial interests the importance of this subject, by discussing it with men for whom he is the family physician. In the same manner he can interest members of the local women's club, civic leagues, or other organizations, and address them, dealing with the relation of malaria to the retarded physical and mental development of the children in their community, the unnecessary small graves in the cemetery, and show how these can be prevented.

The New Jersey plan is good. Each county has a "mosquito extermination association," composed largely of active and successful business men. It is their function to see that funds are provided for the work. The physician can take an active part in arousing interest in the campaign. When he has shown that malaria is a menace to the health of the business man and his family, and that it is reducing his profits, the business man will see to it that the anti-malaria campaign is properly financed.

By giving information to the local press regarding the prevalence of malaria and the possibility of its elimination the doctor can get public interest aroused and create a demand for control measures.

The medical societies should pass resolutions urging upon the Legislature the importance of the problem and the imperative need of providing funds for the State health officer to combat the disease. Such resolutions should be given to the press of the State so as to have a maximum of publicity. Other states have provided their boards of health with funds for the specified purpose of controlling malaria. Shall Tennessee be the last to give its citizens this protection?

The doctor who comes in contact with mill operators and plant managers can show them the possibility of increasing their production by controlling malaria. Instead of having men idle, or on the job when they are not able to do a day's work, they can have their men working nearer 100 per cent all the time.

Every community in a malarious section should consider the control of the disease. It is a serious problem, but if properly recognized and logically attacked it can be solved. It is not only a local problem. A high malaria prevalence in West Tennessee does not affect only that part of the state, but the welfare and prosperity of the entire state. Malaria is prevalent in the South and most directly affects its people and its industries. It also seriously affects other sections of the country for they must pay more for cotton and other Southern products because of the increased cost of production. Any plant or industry which extends its trade into the South is vitally affected by malaria which so greatly influences the prosperity—the buying power of the South.

This is a problem which rests upon the physician, more than upon any other profession, not merely in treating individual cases which come to him for treatment, but as a leader in the community to arouse interest and to take an active part in the fight against this disease.

X-RAY TREATMENT OF OPEN WOUND FOR THE CURE OF CANCER.*

By J. M. King, B. S., M. D.,
Professor Dermatology and Electro-Therapeutics, Vandervile University,
Nashville.

In the summer of 1904, in Dr. Sequira's clinic at the London Hospital, I saw an elderly Welchman whose eyes had been removed on account of cancer and the open orbit had been treated with the x-ray. The results were good. Since then I have treated many cases of all classes of cancer in this way and have strongly advocated this course of treatment in practice and in consultation wherever it was applicable. In my opinion we have wrought numbers of cures in doubtful cases by this combined method that could not have been done by either alone.

The best results are obtained when the cancer is on the surface of the body, yet retardation of growth and palliation are obtained even in deep-seated cases, as in the abdomen and pelvis, without the open wound treatment. This discussion is confined to cancer on the surface and in the mouth, and embraces carcinoma and sarcoma of the skin, and carcinoma and sarcoma that have extended below the skin, but have not invaded the cavities of the body.

The course of treatment is as follows: Whenever the growth on the body may be, the surgery must be done with all care, just as if we were depending upon surgery to relieve the case; adjacent glands and tissue that might already have received metastases must be well dissected away. Some distant angles of the wound might be closed, but this concerns very little. The first x-ray exposure may be given at once or after the patient has recovered from the effects of the operation and may be treated through the small dressing filling the wound or all the dressing may be removed and the bare surface exposed to the rays.

In this work we must bear in mind the purpose of the x-ray treatment, and that is to destroy all remaining cancer cells—those that the dissection did not or could not remove. To accomplish this enough exposure must be made to produce a definite visible reaction in the tissues and on the surrounding skin and this should be obtained with rays of different penetration. Different tubes should be used. Superficial cells yield more readily to soft and medium tubes, deep cells must have penetrating rays from hard tubes such as the Coolidge. The soft rays may be given with either the gas or Coolidge tube; the hard rays should be given with the Coolidge tube. So bearing in mind the primary purpose this treatment I continue with repeated exposures with soft and hard tubes until I get a reaction showing a marked dermatitis on the bordering skin, then the case should rest 'till the inflammation subsides; then give treatment less often and with hard tube. The most effective x-ray work is done immediately after operation. When the wound is open and the cells are exposed on the sur-

*Read at annual meeting of the Tennessee State Medical Association, Chattanooga, April, 1920.

face is the opportune time to kill them. It is simply a question of shooting enough energy onto the surface and into the tissue to cause death of the less resistant cancer cells. A mild dermatitis or mild burn is a negligible factor in this treatment.

My extensive experience with carcinoma and sarcoma of the skin has led me to believe that it is preferable, in the majority of cases, to remove the growth with curette or electrocautery or with both, and then treat the open surface with x-ray. The cosmetic results are about as good as if the tumor had not been excised. Radium placed in the open wound will now displace the x-ray in the treatment of many cases, especially those of the mouth and small deep-seated cancer.

Report of Cases.

A report of cases which involved the removal of the eye lid, the ear, large nodular cancers about the nose and cheek and other areas about the face would be too numerous, but as far as results are concerned I can state that at least 99 per cent of cases treated were successful.

I will report one case of this class illustrative of a number like it. Mr. W. M., age 60, had a nodular carcinoma on the face in the left sulcus between the cheek and nose—a metastasis from an old superficial cancer. The nodule was excised with the electrocautery dissecting wide of the tumor and going as deep as the bony surface of the maxilla. The open wound when the walls retracted was near the size of a half-dollar piece. The x-ray was turned on this area immediately and repeatedly afterwards till a second degree dermatitis was produced on the surrounding skin. The wound was allowed to granulate with an x-ray exposure from time to time, with complete recovery.

Six years ago a man with a similar nodular tumor situated at the same place, also a metastasis, came to me for treatment. He would not allow me to remove and treat the place as I advised him. He wanted the x-ray without operation. I refused to treat him that way. He sought other aid and had the Coolidge tube repeatedly applied but without curing the case. Recently he returned to me asking me to treat him as I first advised.

I shall report only two cases of the major class.

Mrs. F., age 48, 1919—cancer of the left mammary gland—nodule the size of an English walnut. The center of nodule was soft—there were glands in the axilla. Frozen section demonstrated carcinoma. Dr. Richard Barr did a complete excision and cleared out the left axilla. Post operative x-ray exposures were made of the entire area at intervals for a year. At that time a nodule appeared over the mid clavicular region. At my request this was removed with a wide oval excision and the wound left open. The wound was about five inches long and three inches wide. This was strongly treated with x-ray. The wound slowly healed and the patient has remained well.

A case of sarcoma-carcinoma of left side of neck. Mr. D. (Waverly, Tenn.), age 44. After excision by Dr. W. A. Bryan there were three large open wounds extending from the mastoid to the point of the shoulder. A second degree dermatitis was produced over the area and surrounding skin. The wounds slowly healed. Later a recurrence was treated the same way. The patient is well after seven years.

Several cases of deep-seated sarcoma have failed to yield to this treatment. In conclusion I would say that my experience has taught me that this combined method is advisable in all suitable operative cases—according to the old view and what I wish most to emphasize is that many cases of cancer that may be considered inoperable according to the old viewpoint, may now be cured by this combined method of treatment.

312 Doctors' Building.

PELVIC INFECTION.*

By W. M. McCabe, M.D., F.A.C.S.,
Associate Professor of Surgery, Vanderbilt
School of Medicine, Nashville.

The opening in the fallopian tube, an anatomical necessity, is unfortunate because it gives access to bacteria, which causes about fifty per cent of the pathological conditions

*Read at annual meeting of Tennessee State Medical Association, Chattanooga, April, 1920.

found in the female pelvis. The gonococcus, typically a surface germ, finds lodgement on the mucous membrane of the vagina, invades the cervix and uterus and finally reaches the tubes and pelvic cavity.

The combined statistics of Andrews, Menge, Noeggcrath and Wertheim show that five per cent of all pelvic infections are due to the gonococcus (considering the sterile findings as originally gonorrhoeal). Cellular invasion by the gonococcus is extremely rare and Joseph Brettauer considers it doubtful if it ever occurs. Steinsch-Sneider and Schaeffer injected gonococci into cellular tissues but no decided inflammatory reaction occurred. The combined statistics of the above authors show that about eight per cent of pelvic infections are due to the streptococcus. Other forms of infection occur but rarely and they may be ignored in a paper of this character.

The streptococcus invades the pelvic structures by penetrating the uterine wall. The invasion is by continuity and the cellular tissue in the base of the broad ligament and the sides of the pelvis are involved. Bi-manual examination gives one the sensation of a plaster mold of the pelvis. The streptococcus never invades a normal non-parturient uterus. The gonococcus, however, will invade the normal uterus. This point must be thoroughly weighed and every effort made to ascertain the facts in the case, because it is of the utmost importance to know the type of infection with which we are dealing before operative procedures are considered. Many cases of puerperal infection, however, may be due to an exacerbation of a latent gonorrhoeal infection, a vaginal infection which did not involve the pelvic structures, or an infection contracted after the cervix had been sealed.

If one opens the abdomen during the acute stage of a gonorrhoeal infection, he will see the abdominal ostii weeping pus into the pelvic cavity. The pelvic peritoneum is able to combat this infection and only a small percentage of cases go to the stage of pelvic abscess formation. The tubal ostii become healed and in ten afebrile days the pus is sterile and operation may be performed with impunity. Maxon claims the death of these bacteria usually takes place in four months,

but in fifty consecutive cases of Neisserian salpingitis cultured at the Nashville City Hospital sterility was always present after ten afebrile days. It was our custom at that time to operate after the patient was free of fever for ten days. Pelvic abscesses are local and they sterilize themselves the same as pyosalpinx. It is my opinion that unless there exists a profound indication vaginal section should not be performed. It simply opens the door to the pelvic peritoneum for the entire colony of bacteria harbored in the vagina. I have seen many of them completely subside under rest and hot vaginal irrigations.

It would be of extreme interest and of the utmost scientific value if the percentage of a series of cases, having had pelvic infection, could be traced and the number of pregnancies recorded. I am certain that many of us have been operating on these cases too early. The mere fact that a mass can be felt on the sides of the uterus is no indication, per se, for an operation. Many of these women lead a symptomless and fairly comfortable life and bear progeny. Let us refrain from operating on them as soon as the acute stage has subsided and give them a chance to bear children and become happy mothers.

If the patient is invalided from her pelvic pathology, then operation becomes imperative. All pathological tissue must be removed. If it is necessary to remove both tubes and ovaries then a supravaginal hysterectomy with a dissection or cauterization of the cervical mucosa should be done. Conservation of pathological tissue is extremely bad surgery. If it is possible to leave the tube and ovary on the same side, it should be done, but if one leaves the ovary without the tube the blood supply is so poor that the ovary frequently undergoes cystic degeneration and gives trouble. There should be a thumb and finger rule on this point, but I must acknowledge my weakness and say that it is rather hard for me to remove an ovary that looks and feels normal.

The cases requiring tube drainage are streptococcal and should be operated only with the idea of draining localized abscess pockets. Extreme care must be taken not to disseminate infection. The streptococcus is proba-

bly never sterilized by nature and eases are on record where they have been isolated from the tissues years after infection. A tube has no place in the treatment of gonorrhoeal infection.

If the abdomen is opened and the base of the broad ligament is infiltrated, one is doing a very unwise and hazardous thing if he attempts further surgery. A friable uterus with infiltration in the surrounding tissues is almost sure to be streptococci, but a friable uterus free from infiltration in the surrounding tissues may be syphilitic. I remember one case very distinctly in which a enrette had perforated the fundus uteri and penetrated a loop of ileum. The uterus was too friable to hold sutures and a hysterectomy became necessary. The ileum was resected and the woman recovered. She yielded a four plus Wassermann. These two facts combined are almost *prima facie* evidence that the infection was luetic.

RESOLUTIONS OF NATIONAL ANAESTHESIA SOCIETY.

Statements made from the floor of the convention of the National Anaesthesia Research Society indicate that colleges are not turning out anaesthetists fast enough to meet the demand. Dr. Isabella C. Herb, of Chicago, urged that the services of an anaesthetist should be considered separate and apart from hospital charges, and that separate statements should be sent to the patient.

Dr. George W. Crile, of Cleveland, said: "I do not believe that any of us feels that the degree of M. D. confers a moral right to give an anaesthetic. The work needs long and special training. We will co-operate with you. Some people never can be anaesthetists. They must be peculiarly fitted by nature. Personality and training are important."

Dr. Lower, of Cleveland, said: "No surgeons use lay anaesthetists if there are well-trained M. D.s available. Are you going to supply the demand?"

On motion of Dr. George Pinnes, of Los Angeles, second by Dr. E. I. Meesson, of To-

ledo, the following resolutions were adopted:

Whereas, the American Association of Anaesthetists is committed to the advancement of the science and art of anaesthesia in all that relates to the welfare of humanity, through the medical and dental professions; and

Whereas, the advances in medical science are making it increasingly clear that the administration of anaesthetics is a factor of practically equal importance with diagnosis, treatment, and operation; and

Whereas, there is an increasing disposition on the part of a few surgeons and hospitals to commit the administration of anaesthetics to nurses, office assistants and others without adequate qualifications, exploiting such services to their commercial advantage, according to testimony adduced before this Association, thus jeopardizing the health and welfare of patients, and increasing the death rate in operations; and

Whereas, anaesthesia is in a state of evolution, and those who advocate lay anaesthesia would defeat any further progress in this branch of medicine; therefore be it

Resolved, that the American Association of Anaesthetists places itself on record as unalterably opposed to the employment of lay anaesthetists, nurse anaesthetists, and all other types of anaesthetists who shall not have been graduated from recognized medical or dental colleges and have been licensed to practice medicine or dentistry.

Be it further resolved, that the American Association of Anaesthetists will inaugurate and prosecute legislation to protect the medical and dental professions and the public from such inadequately educated and trained anaesthetists whenever such action is necessary.

The Association also adopted resolutions pledging its co-operation to the government in securing specialists in the several branches of medicine in the departments of the surgeon-general of the navy and surgeon-general of the army.

The American Association of Anaesthetists elected the following officers:

President, Jos. E. Lombard, M. D., New York City; Vice-Presidents, F. L. Richardson, M. D., Boston, Mass., and Eleanor Seymour, M. D., Los Angeles, Cal.; Secretary-Treasurer, F. H. McMechan, M. D., Avon Lake, O.; Executive Committee: John J. Buettner, M. D., Syracuse, N. Y., and Paul Lutz, M. D., Kansas City, Mo.

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EDITORIALS**VITAL STATISTICS FOR 1919.**

The compilation of vital statistics for Tennessee for the year 1919 has been practically completed by the Bureau of Vital Statistics of the Tennessee State Board of Health.

A very marked reduction in the number of deaths registered for the last year as compared with 1918 is to be noted, as well as a decided reduction in the number of births. The total number of deaths registered in Tennessee for 1919 was 28,456, excluding stillbirths, which are registered as deaths and also as births. This gives a death rate for the year of 12.34 per one thousand population. The number of births registered was 47,673, exclusive of 2,098 stillbirths, giving a birth rate for the state of 20.69. This is a reduction of 1,551 in the number of births registered as compared with the year 1918 and a reduction of .7 in the birth rate.

The very great reduction in the number of deaths registered as compared with 1918 was, of course, largely due to the fact that the influenza epidemic in 1918 was responsible for a very unusual number of deaths. The influenza epidemic also had its effect in the reduction of the number of births registered in 1919, for the reason that a great many prospective mothers lost their lives in that epidemic.

Another feature in the reduction of the number of deaths registered in 1919 is to be found in the fact that the registration organization in the state, which is composed of approximately 2,000 persons, was greatly disorganized by the influenza epidemic in the late months of 1918 and the early months of 1919. It is probable that the returns for the year

1919 were not as complete as they should have been because of this disorganization of the registration forces throughout the state.

A very great reduction is to be noted in the number of deaths from tuberculosis in 1919 as compared with the preceding year. In 1918 there were 4,551 deaths registered from tuberculosis, 2,648 of which were white and 1,903 colored. In 1919 there were only 3,809 deaths registered from tuberculosis, 2,305 of which were white and 1,504 colored. The death rate from tuberculosis in 1918 was 197.4 per 100,000 population; whereas, this rate for 1919 was 165.2 per 100,000 population. Pulmonary tuberculosis was responsible for 4,129 deaths in 1918, 2,380 of which were white and 1,749 colored. In 1919 there were 3,432 deaths registered as due to pulmonary tuberculosis, 2,046 of which were white and 1,386 colored. It is interesting to seek explanation for the very marked reduction in the number of deaths registered in 1919 as due to tuberculosis as compared with the number registered from the same cause in 1918. Making due allowance for incomplete registration of deaths, it is thought that the two greatest factors operative in bringing about this reduction are to be found (First) in that it is very probable that a large number of persons succumbed to influenza in the terrific epidemic of 1918 who otherwise would have died from tuberculosis during the year 1919. (Second) it is probable that the greatly improved living conditions, which have been in evidence during the last two or three years among the masses of the people, have made it possible for many persons infected with tuberculosis to resist their infection and to prolong their lives. Of course, this is purely speculative but it seems reasonable to assume that the provision of much better food and far better living conditions than the mass of the people have been accustomed to enjoy has played a considerable part in the reduction of the death rate from tuberculosis, as well as from other preventable disease.

The number of deaths reported in 1919 as due to pneumonia was tremendously reduced as compared with the number of deaths registered in 1918 from this disease. There were about 5,000 fewer deaths reported in 1919

from influenza than were registered from this cause in 1918.

The number of deaths reported as due to cancer and other malignant tumors in 1919 was practically equal to the number reported in the preceding year, the reduction being only ten deaths.

A gratifying reduction in the number of deaths registered from typhoid fever in 1919 is to be noted as compared with 1918; while there is a difference of only 41 in the numbers of typhoid fever deaths in the two years. This difference is great enough to show that the methods which are being vigorously pushed for the reduction of typhoid fever in the state are producing results. It is especially gratifying to observe that in every county in which the Division of Rural Sanitation of the State Board of Health has operated in an intensive campaign that a reduction in the typhoid death rate has been accomplished.

The number of deaths registered from pellagra during the past year was 442 as compared with 689 in 1918.

Two hundred and fifty-six deaths were reported from malaria. On the basis of 100 cases of malaria for each death from this disease, it would seem that there were more than 25,000 cases of malaria in Tennessee in the year 1919. These figures are in all probability far short of the real facts.

From diarrhoea and enteritis, under two years of age, 1,239 deaths occurred in the state in 1919 according to the vital statistics returns, as compared with 1,406 deaths from this cause in 1918.

Four thousand one hundred and seventy-one deaths of infants less than one year old were reported to the State Board of Health during the past year, as compared with 4,787 in the year 1918.

Of the 256 deaths reported from malaria 201 or 78.5 per cent were reported from West Tennessee counties; forty or 15.6 per cent from the counties of Middle Tennessee, and fifteen or 5.8 per cent from the Eastern section of the state.

Of the 442 deaths from pellagra 164, or 37.1 per cent were reported from East Tennessee counties, 124, or 28 per cent from Middle

Tennessee and 154, or 34.8 per cent from West Tennessee counties.

West Tennessee counties reported 244, or 37 per cent of the deaths registered as due to typhoid fever; while the counties in Middle Tennessee reported 226, or 34.8 per cent, and the counties of East Tennessee 182, or 28 per cent.

It is unfortunate, indeed, that birth registration continues to be markedly incomplete in many counties of the state. Blount, McMinn and McNairy counties show a birth rate of 31.4 for the year 1919. Cocke county, with a rate of 30.5 and White county with a rate of 30, show higher birth rates than any other counties except the three named above, and the county of Unicoi, which leads with a birth rate of 38.2. The lowest birth rate reported in 1919 was in Shelby county, which shows a rate of 9.5. Of course the establishment of a birth rate like that simply means that birth registration is tremendously incomplete in the county.

The death and birth rates presented above are based on the same estimated population which was employed in the establishment of such rates for the year 1918. In some instances these rates are too high, while it is probable that in a few instances they will prove to be too low, but inasmuch as the Census returns had not been reported when the death and birth rates for 1919 were figured, the old estimated population had to be used.

The figures presented in this statement are not given as final. All of these figures will have to be verified and it is quite probable that certain minor changes will be made as errors may be discovered.

It is confidently believed that the work of the State Board of Health and other agencies engaged in active efforts for the prevention of disease and the conservation of human life in Tennessee has helped to some extent to effect reductions in death rates and in the promotion of the general health of the state's population.

IMPROVEMENT IN HOSPITAL SERVICE.

Every state medical association in the United States has its part in the present universal movement for the betterment of hospital service. Every association now has its own committee, which is studying the hospital situation in its state in co-operation with the Council on Medical Education of the American Medical Association. The Council has obtained, through reports, correspondence, and other methods, data relative to all hospitals in the country, and each state committee has been supplied with the data relating to the institutions in its state. Through their closer familiarity with the hospitals, or by inspections, the state committee is in excellent position to verify these data and to make a reliable report to their state association and to the Council.

For convenience, and in order to secure uniformity of reports from the forty-eight committees regarding the relative efficiency of hospitals, blanks furnished by the Council call for a rating of all hospitals in Classes A, B and C, grouped also according to the special class of patients cared for. This rating is not for publication, but will aid the Council in the preparation of a list of hospitals which are considered worthy of approval. These lists are subject to frequent revision, so that names of other hospitals can be included as soon as sufficient improvements are made to warrant their being approved. State committees are urged to promptly report to the Council any instances where such improvements have been made.

The purpose of the work is to aid the hospitals in providing for their patients the best possible service and in no way to injure those which are honestly endeavoring to provide such service. Toward this end, every possible assistance will be given to individual hospitals by the Council or by the local state committee in establishing such changes as will make them worthy of approval.

Forty-two state committees have reported progress in connection with the latest survey, and thirty-four have turned in reports regarding hospitals inspected and graded, which have more than half the entire bed ca-

capacity of all general hospitals in the country. Meanwhile, this work of the Council is not conflicting with or duplicating the splendid work being done by the American College of Surgeons, the Catholic Hospital Association, the American Hospital Association, or other agencies. In fact, the work of each agency is evidently complementing that of the others.

At the New Orleans meeting, recently, the House of Delegates of the American Medical Association registered an intense interest in the improvement of hospital service and authorized the trustees to generously provide for that work. This work has been so intimately related to that of the Council on Medical Education that the name of this Council was changed to the "Council on Medical Education and Hospitals."

In brief, further enlargement of hospital work by the American Medical Association is assured, and in this work each state is destined to have an important part. Toward this end each association is urged to make its hospital committee permanent and to retain on it those who will not only be active, but who also can do the work in the most efficient and unbiased manner. Hospitals, at present, form the closest link between the medical profession and the public, and the medical profession should do all it can to aid the hospitals to provide the very best service possible.

A NEW COUNTY SOCIETY.

The DeKalb County Medical Society has been reported for 1920 by Dr. L. D. Cotten, Secretary, with seven members. This makes medical organization in Tennessee include sixty-eight of the ninety-five counties in the state.

DeKalb County was formerly one of the units of the state organization, but has not been reported for several years. We extend a most cordial welcome to the members of the new society, and sincerely hope that they will fully realize the benefits that should come to them from the maintenance of an active medical society.

STATE BOARD OF HEALTH LABORATORY FOR EAST TENNESSEE.

The State Board of Health has extended its laboratory service by the establishment of a branch laboratory under the direction of Dr. A. W. Sweet, at the College of Medicine of the University of Tennessee at Memphis. Examinations will be made for the diagnosis of tuberculosis, diphtheria, cerebro spinal meningitis, typhoid fever, malaria, intestinal parasites, rabies and for syphilis and gonorrhoea in **indigent** cases.

Containers for sending specimens can be secured by physicians by asking for them. It is necessary that specimens sent to the laboratory shall be in containers which meet the requirements of the postal regulations. Otherwise they may not reach the laboratory. Physicians sending specimens in other containers are liable to heavy fines for each offense.

All specimens should be carefully marked so that it can be known from whom they come.

Physicians in West Tennessee should avail themselves of the services of the branch laboratory at Memphis.

NOTES AND COMMENT

The enrollment of members in several of our county societies is still somewhat "off."

Dr. J. D. Brewer, Dyersburg, after several months of study in New York, has returned to Dyersburg and will be associated with Dr. O. Dulaney at the Baird-Dulaney Hospital.

The U. S. Civil Service Commission announces an open competitive examination for physicians to fill vacancies in the Indian Service, the U. S. P. H. Service, the Coast and Geodetic Survey, etc. Salaries range from \$1,000 to \$3,000. Applications should be made to the U. S. Civil Service, Washington.

Pneumonia other than influenza-pneumonia was assigned as the cause of 2,067 deaths reported to the State Board of Health in 1919.

There were 3,846 deaths registered in Tennessee in 1919 as having been caused by influenza.

Cancer and other malignancies caused 992 of the deaths recorded by the State Board of Health in 1919—just 10 less than in the preceding year.

The 1919 birth rate for Tennessee was 20.6. The death rate was 12.34.

Unicoi County had a birth rate of 38.2 last year, while Shelby County, outside of Memphis, had a rate of 9.5. Those are the extremes.

Get every eligible man into the county medical society. A considerable increase in our membership will go a long way toward meeting the increased costs of operations this year.

Dr. Ambrose Jones, Cornersville, who recently died, was one of the oldest of the members of our Association. The Journal will contain some account of his life in the next number.

MISCELLANEOUS

TUBERCULOSIS IN TENNESSEE IN 1919.

The appended table shows the total number of deaths from tuberculosis registered in Tennessee in 1919, as well as the numbers of deaths of white and of colored persons. It will be seen, when the figures for 1919 are compared with those of the preceding year, that a very marked decrease in tuberculosis deaths was recorded. The factors contributing to this are not yet clearly established; at any rate, not all the factors have yet been made definitely apparent.

In 1918 there were 4,551 deaths recorded as having been due to tuberculosis—742 more than in 1919. Of those 2,380 were deaths of white persons due to pulmonary tuberculosis,

which accounted also for 1,749 deaths of negroes. In 1919 there were 2,046 deaths in whites, and 1,386 in negroes from pulmonary tuberculosis, a decrease of 334 white and of 363 colored deaths. From all other forms of tuberculosis 268 white and 154 colored deaths were registered in 1918, as against 259 and 118, respectively, in 1919.

The influenza epidemic of 1918, the removal from the state of a great many negroes, better food and better living conditions for the masses, and, in some of our counties, incomplete registration of deaths, are all believed to have played some part in bringing about a decrease in the number of deaths recorded by the State Board of Health. In addition to these possible factors, there can be no doubt but that a better medical service by a better medical profession; a greater enlightenment upon the part of the people as to the causation and prevention of tuberculosis; the work of public health agencies throughout the state; the service of such tuberculosis hospitals as we have; and the splendid training received by great numbers of our young men in army camps have all contributed to a reduced mortality from tuberculosis.

TUBERCULOSIS, 1919.

	Deaths, Deaths, Total White. Colored. Deaths.		
Anderson County	10	6	16
Bedford County	18	13	31
Benton County	13	1	14
Bledsoe County	2	--	2
Blount County	22	7	29
Bradley County	19	4	23
Campbell County	10	1	11
Cannon County	13	--	13
Carroll County	42	9	51
Carter County	14	2	16
Cheatham County	17	9	26
Chester County	11	7	18
Claiborne County	17	--	17
Clay County	8	1	9
Cocke County	21	2	23
Coffee County	12	3	16
Crockett County	20	12	32
Cumberland County	6	--	6
Davidson County	87	66	153
Nashville	107	119	226
Decatur County	11	2	13
DeKalb County	29	3	32
Dickson County	19	8	27
Dyer County	26	14	40
Fayette County	10	51	61

Fentress County	6	--	6
Franklin County	11	4	15
Gibson County	37	37	74
Giles County	36	29	65
Grainger County	28	--	28
Greene County	54	3	57
Grundy County	7	--	7
Hamblen County	13	6	19
Hamilton County	75	19	94
Chattanooga	66	65	131
Hancock County	12	1	13
Hardeman County	11	23	34
Hardin County	17	3	20
Hawkins County	26	1	27
Haywood County	12	58	70
Henderson County	12	8	20
Henry County	26	15	41
Hickman County	10	1	11
Houston County	3	2	5
Humphreys County	12	4	16
Jackson County	18	--	18
James County	8	--	8
Jefferson County	12	3	15
Johnson County	5	--	5
Knox County	41	12	53
Knoxville	98	29	127
Lake County	4	2	6
Lauderdale County	11	43	54
Lawrence County	20	3	23
Lewis County	2	3	5
Lincoln County	31	18	49
Loudon County	22	3	25
Macon County	17	1	18
McMinn County	29	10	39
McNairy County	15	4	19
Madison County	13	25	38
Jackson	16	23	39
Marion County	21	4	25
Marshall County	26	20	46
Maury County	34	41	75
Meigs County	7	--	7
Monroe County	9	6	15
Montgomery County	30	33	63
Moore County	6	1	7
Morgan County	9	1	10
Obion County	24	17	41
Overton County	15	--	15
Perry County	22	1	23
Pickett County	6	--	6
Polk County	10	1	11
Putnam County	32	1	33
Rhea County	19	2	21
Roane County	30	9	39
Robertson County	32	27	59
Rutherford County	22	33	55
Scott County	8	--	8
Sequatchie County	3	--	3
Sevier County	25	2	27
Shelby County	20	107	127
Memphis	98	237	335
Smith County	31	10	41
Stewart County	11	8	19

Sullivan County -----	29	7	36
Sumner County -----	54	26	80
Tipton County -----	9	34	43
Trousdale County -----	5	8	13
Unicoi County -----	9	--	9
Union County -----	14	--	5
Van Buren County -----	5	--	5
Warren County -----	25	6	31
Washington County -----	67	14	81
Wayne County -----	14	--	14
Weakley County -----	43	9	52
White County -----	26	1	27
Williamson County -----	13	18	31
Wilson County -----	38	27	65

Totals -----	2,305	1,504	3,809
Total deaths pulmonary tuberculosis-----			3,432
Total deaths all other forms tuberculosis--			377

Grand total -----			3,809
Deaths pulmonary tuberculosis, white----			2,046
Deaths pulmonary tuberculosis, colored--			1,383

Total, white and colored -----			3,432
Deaths all other forms tuberculosis, white			259
Deaths all other forms tuberculosis, col'd_			118

Total, white and colored -----			377
Total pulmonary and other forms-----			3,809

Death rate (per 100,000 population): Pulmonary tuberculosis, 148.9 per cent; tuberculosis, all forms, 165.2 per cent.

These rates are based on an estimated population of 2,304,629.

THE BLOOD PRESSURE MANIA.

Readings Very Misleading and Not in Conformity With Actual Conditions.

The mania is characterized by the delusion that the health, happiness and in fact the very existence of patients with alleged hypertension hang entirely on the results of frequent taking of blood pressure.

At present the craze is being worked overtime in certain pseudo-scientific circles where physical examination and clinical experience are discounted in favor of supposed short cuts of diagnosis, prognosis and cure.

In the past, fads such as trephining in microcephalus, ovariectomy in obscure nervous diseases in women, appendectomy, tuberculin, x-ray, focal infection, thyroidectomy, arsenamine, Wassermann test, etc., have all

gone through the fad stage, have taught their lesson and are today being used in a sane manner.

With blood pressure as with previous valuable medical discoveries what we have to contend with is the exaggeration of its importance by enthusiasts. At present its value as a means of diagnosis is overestimated; valuable methods of diagnosis are being subordinated by blood pressure examinations under the belief that it is the last word in the detection of disordered conditions of the body.

We have no fixed standard for measuring blood pressure, because of inability to find a satisfactory apparatus. The Bureau of Aeronautics recently wrote the Bureau of Standards, Washington, D. C., as follows: "We understand that there is an investigation going on or is about to proceed to establish standards in blood pressure apparatus and setting a degree of tolerance for the guidance of physicians in general."

The chief physicians of one of the large insurance companies recently wrote to one hundred of the leading diagnosticians of America asking for information on blood pressure; not a single physician definitely answered the question as to what blood pressure is, or what causes it.

The situation is well stated by Dr. Harold W. Dana (J. A. M. A., May 17, 1919). He says: "The more I study blood pressure, the less sure I become of the accepted interpretation regarding the test. Certainly, while I have as much respect for blood pressure readings as ever, I feel that we must get a new conception as to the factors influencing the readings."

As a working hypothesis blood pressure may be said to be a barometer of mechanical functioning of the body. That there is a normal blood pressure for each individual is universally accepted and where we fall short of a proper interpretation of the subject is in our attempt to measure all mankind by the same yard stick. We make the positive statement that there is considerable variation in the normal blood pressure of different individuals. What is normal for one may be abnormal for another. Blood pressure is susceptible in the same normal variations in different people as

is stature, pulse rate, or the activity of secreting glands, and what is normal blood pressure for an individual can only be determined by observation over a period of time.

Many factors are responsible for errors in determining normal blood pressure, therefore before we can derive any benefit from readings we must rule out all fallacies and extraneous influences which tend to militate against its accuracy. These are defective instruments, psychic influences, excitement, pain, the difference in blood pressure between the two arms and the position of the patient when the blood pressure is taken. Of these factors inaccurate instruments and psychic influences are by far the most important.

Sixty-five per cent of aneroid instruments are unreliable and should never be depended upon, unless checked by mercury instruments. Even with the mercury machines there is a wide variation of readings in instruments put out by different manufacturers. The writer (with Dr. Tice of Chicago) in examining a case of supposedly hypertension utilized five different well-known mercury instruments and found no two readings alike; there was a variation of twenty-eight points between the highest and the lowest.

There is an apparent difference in blood pressure between the two arms, but as a matter of fact the pressure in both arms is the same, the difference being entirely psychic and that regardless of the positions of the patient and regardless of which arm is taken first; the higher reading is in a vast majority of cases in the arm taken first, the difference amounting as high as 38 mm. of mercury and is most marked in a standing position and least marked in a recumbent position; the difference in the sitting position being almost as high as the standing position.

At the present time nervous or psychic influence as a cause of temporary hypertension is not given the consideration it should have. Mental impressions cause vaso-constriction with resulting hypertension. Instances of vaso-constriction are frequently found in those subjected to nervous strain and worry, the blood pressure jumping 20 to 75 mm. or more because of fear, fright, or the mention of an unpleasant or worrying topic.

We have seen many examples of temporary hypertension resulting from psychic disturbances. The following examples are typical of many:

The writer, while serving on a retiring (pension) board where many applicants were compelled to undergo physical examination to determine their fitness to retain their position, found that many of the applicants showed marked results of fear and anxiety on blood pressure. In one case there was a drop of 75 points in the 15-minute interval between the first and second examination, the applicant having no warning that re-examination would be given. This interesting phenomenon was corroborated by four reputable physicians. Before this same board there were several cases which showed a drop of 40-50 points between the first and the re-examination.

Today we are seeing many cases of psychic blood pressure disturbances following the "flu." The following are typical of many. A young aviator, 24 years old, home from service a short time; repeated examination while in the service showed him to be physically perfect. January, 1920, taken down with the severe attack of "flu," showing marked disturbance of the nervous system. When convalescing, his blood pressure was: systolic 180, diastolic 98; he was apparently self-controlled in the interval between the doctor's visits. While he had known the doctor for many years, nevertheless, he became greatly excited on hearing his voice or approaching footsteps, his heart beat would jump to 130 a minute, face would become markedly flushed and there was apparent complete loss of control of the nervous system. This condition continued for a long time. After many weeks' rest in bed and several additional weeks of rest and appropriate treatment at home he completely regained his former condition, his blood pressure resumed his normal reading, namely, systolic 125, diastolic 84.

Another case, a physician who five years ago, while undergoing a complete roentgen x-ray examination by one of America's foremost roentgenologists, was told that he had a spastic condition of the lower bowel, a condition the roentgenologist claims he found

frequently in bankers, lawyers and business men subjected to much mental work and anxiety. In January, 1920, he had a mild attack of "flu," was considerably fatigued and depressed for several days. Four weeks later examination by a strange physician showed hypertension, diastolic 98, systolic 170. Considerable disturbance followed this diagnosis. Examination two weeks later by another physician showed diastolic pressure 98, systolic 190, the latter dropping 30 points within ten minutes after first reading. Deciding personally to check up on his blood pressure readings with a certified Baum mercury instrument, he found the following to be the real condition. Repeated tests taken three times a day over a period of weeks demonstrated conclusively that the former high readings were purely psychic, the average of 100 readings showed diastolic 90, and systolic 132, and that there was very little variation in the readings taken several times a day without regard to exercise, eating, etc. In connection with this case it is interesting to note that a complete x-ray examination following within a few days after the diagnosis of hypertension showed complete absence of spasticity of the bowel, suggesting the possibility of the influence causing spasticity having been transferred from the bowels to the blood vessels.

Another case typical of many others: A middle-aged lady, anemic with low blood pressure, much run down as the result of work, worry and care of a family having many cases of "flu," one day when fatigued from shopping and considerable time spent with the dentist, became very nervous, developed a condition approaching hysteria and nervous breakdown. She was taken home and put to bed. Her blood pressure next day showed systolic 190, diastolic 100. The blood pressure readings fluctuated very little over a period of six weeks. As a result of rest and proper treatment she gradually improved in strength and energy. The hypertension rapidly resumed normal as her general condition improved.

Dr. Oliensis, Philadelphia (N. Y. M. J., Feb. 28, 1920), says: that the psychic influence alone may raise the pressure 38 mm. of mercury and often higher. This was brought forcibly to my mind by the blood pressure read-

ings of a patient of a physician whom we all know. This physician and I both obtained the same high blood pressure when he was with the patient, while I was able to get a pressure 30 to 40 points lower when he was not there. The patient's blood pressure was invariably raised by that physician's presence.

Dr. Norris states that fear, excitement or psychic impressions have a marked effect on blood pressure. In taking one's own pressure, higher results are often found than those obtained by another observer immediately before or afterwards, simply as the result of psychic concentration. Schrumpf relates an instance in which anticipation of an unfavorable prognosis raised the pressure of a patient 33 1-3 per cent, to fall again promptly when reassurance was forthcoming, only to rise once more when complaining of his insomnia and worries. Gibson found that his own pressure was increased from 35-40 mm. after delivering a lecture. Due allowance for variability of the systolic pressure must always be made in neurotic patients.

Von Recklinghausen observed in his own case a rise of 14 mm. caused by the entrance into his presence of a person whom he intended to berate. Puterman found that the anticipation of an examination almost without exception raised both blood pressure and pulse rate in school children. In extreme cases psychic states may cause a rise of 90 mm. Hg., generally in association with marked pleasure, anger or fright. The diastolic pressure in these cases is practically unaffected.

In cold weather a chilly cuff applied to the arm, both by the displeasure it causes the patient, and by the stimulating effect it has upon the vasomotor nerves, may yield erroneous readings in high strung individuals.

"It sometimes happens that the initial systolic blood pressure reading on a given subject yields distinctly higher figures than can be attained in subsequent attempts. Gallavardin and Haour found in a study of 100 cases that this initial high pressure, which may amount to 35 mm., may last 15 minutes, although in fifty per cent of the cases the normal point was reached at the end of five minutes."

At the present time we do not positively know the meaning of systolic and diastolic pressure. Until the subject is standardized, readings will be at variance with the real facts. We quote herewith the conclusions of several authorities qualified to speak on the subject of blood pressure values. Norris, in his treatise on the subject of hypertension, says: "A systolic pressure finding constantly above 160 mm. Hg., or a diastolic pressure constantly above 100 mm. Hg. is definitely pathological at any age."

Major (Dr.) Harold W. Dana, Boston, formerly chief cardio-vascular and lung examiner, Medical Officers' Training Camp, Camp Greenleaf, Ga., during the late war, makes the broad statement that high systolic pressure readings do not mean what they once meant. He declares further, that repeated systolic readings of 200 mm. Hg. may have little significance, and that we are all wrong about the value of blood pressure readings.

With regard to the meaning of the diastolic blood pressure, I feel that our present conceptions are even more wide of the mark. Observers in general feel that the diastolic pressure represents the power of the heart to maintain the circulation. In aortic regurgitation, in hyperthyroidism, and in "irritable heart of soldiers," we may have a greatly lowered diastolic pressure without necessarily any actual failure of the muscle power of the heart. Many clinicians feel that a diastolic pressure above 100 mm. indicates a myocardial defect. With this point of view I cannot agree. I believe, as do many others, that a systolic blood pressure of 150 or 160 mm. may be normal for a man 50 years old. To my mind, the ratio 2:3 for the diastolic and systolic pressures, respectively, should be maintained by the normal heart regardless of the rise or fall of pressure; and with a pressure of 160 mm. systolic, I believe that an intact circulation would show a diastolic pressure of from 105 to 110 mm.

Recently I have had the opportunity of studying blood-pressure findings in a large number of army officers and candidates for commissions in the army, chiefly in men over 30 years of age, medical officers being in a large majority.

Most of the medical officers examined came to camp from a considerable distance, and were examined the day after their arrival, without opportunity for rest after the long journey. Being physicians, they were almost universally very nervous over the ordeal of the examination. Most of them were naturally constipated, and

this constipation was increased by the journey, by the change of routine, and by the change in diet. To many, sleep under camp conditions was at first difficult. From all of these causes, it was not surprising that a large number of the candidates showed an elevation of the systolic blood pressure. In a great majority of such cases, however, rest, catharsis, and the fact of becoming accustomed to the new routine of life, soon brought the blood pressure down to within normal limits. It served to demonstrate in a very striking way the effect of overwork, nervous strain, psychic stimulation, and constipation, in raising blood pressure.

One fact that impressed me particularly is the frequency with which one meets a familial hypertension. Such a condition of continued elevated systolic pressure, in which most members of particular families share, the tendency apparently being hereditary, does not seem in such families to cause invalidism or to shorten life. Indeed, it has seemed to me that many such individuals with a sustained hypertension continue to have better than normal health and robustness; and that the hypertension, if it were not actually the cause of this, at least went hand in hand with their abundance of strength.

With a superabundance of energy and an abnormal vitality, one physician, 48 years old, 6 feet tall, weighing 190 pounds, hard as nails and the picture of health, had a constant systolic pressure of 190 to 200, with a diastolic of 110 to 120. He told me that his father was over 80 years of age, vigorous and active, in spite of a systolic pressure that had been around 200 mm. for years. The officer in question and his brother, three years his senior, had each of them presented similar pressures for years, yet had the best of health. This officer showed a negative urine, a normal heart, no thickening of the peripheral arteries, and normal eye grounds.

Such a condition shakes our faith in any preconceived standard for normal systolic pressures. These familial hypertension cases as a general thing, in my opinion, can be accepted as representing, to all intents, and for that particular family, a condition free from serious organic disease.

Another type in which there is difficulty in setting down a standard for normal blood pressure is the case in which the hypertension is compensatory to renal or arterial disease. In this general category come those cases in men of 50 years or over in which the blood pressure has assumed a probably normal and physiologic elevation. Taken by and large, our conception as to what represents an unduly high systolic blood pressure in a given individual must take a good many facts into consideration, must be highly individualized, and must have considerable latitude, both as to the standard accepted and the inter-

pretation to be placed on deviation from the standard.

Certainly I am not at all willing to concede that a high blood pressure, for example, 200 mm., means necessarily any of the things that we have always agreed that it did mean. It does not seem to me a proved fact that marked hypertension necessarily causes apoplexy, that it necessarily increases the probability of apoplexy, or of renal arterial disease, or of ill health of any kind. If marked hypertension means of a certainty any of these things, why do some men live to far beyond the average age, in spite of continued marked hypertension of long duration? Granted that some pathologic condition would have been found present after death in these cases; granted that sighs of nephritis or arterial degeneration might have been present, proof is still lacking that the hypertension was the result of the lesions found; for, after all, if there were not some cause for the termination of life, these fortunate beings would have lived forever; and in my opinion any man who enjoys reasonably good health and an active life—as many men with marked continued hypertension do—until past 75 or 80 years comes to his final end for the reason that his body is not immortal and is constructed to last for only seventy years or thereabouts.

Dr. D. Nathan, Norristown, Pa., Captain in the Canadian Army Medical Corps, says that blood pressure as an aid in diagnosis is commonly accepted, but that high blood pressure has the significance given it by the general practitioner is debatable. Even if the instruments as yet perfected were infallible as a guide to exact blood pressure, there are still several factors to be reckoned with—e. g., local arterial conditions, local increased peripheral resistance, where the reading would not measure anything but the pressure of the blood stream passing through the vessel occluded by the cuff.

In the Heart Hospitals in England less account was taken of the blood pressure than of other clinical factors and with as good results, I think. The form later adopted by the Canadian Medical Board required taking the blood pressure when the pulse exceeded 90, and of course the faster the heart beats, other factors upon which blood pressure depends remaining the same, the blood pressure will rise correspondingly. I can say this, that in the examination of thousands of men, many of whom have spent most of four years in the trenches, high blood pressure was of little importance. Among these were cases of disordered action of the heart with blood pressure bearing in many cases above normal. Few cases complain, many cases being discovered by the medical officer examining. Fortunately the battalion medical officer did not carry a sphygmomanometer which he could flash on every Tommy on sick parade, else we would have had the high blood pressure, neurosis, to cope with.

We have seen several cases recently of comparatively young men with obsessions of high blood pressure when actual blood pressure did not exist, the high readings recorded being due solely to psychic disturbances. Two instances recently came to our attention of young men thirty years old who were carrying around a bundle of high blood pressure readings not in conformity with real conditions. The mental upset induced by psychic concentration and their fear of approaching dissolution was pathetic in the extreme. Certainly it is time to call a halt in the blood pressure craze and prevent as far as possible the rapidly increasing number of hypertension neurasthenics. Standardization of the subject of blood pressure is the only solution of the problem.—*Illinois Medical Journal*.

THE TREATMENT OF GONORRHEA.

During the war specialists had abundant opportunity to test the efficiency of various forms of treatment in gonorrhea. In every camp there were hundreds of cases. We shall pass over attempts to treat this disease by vaccines and serums and confine ourselves to antiseptic injections. In some of the camps there was considerable enthusiasm about the results obtained with certain diffusible dyes. When dissolved in water it was found that many of these preparations were highly germicidal, but, unfortunately, when dissolved in urine the germicidal coefficient fell in most instances to a low point. Among all the diffusible dyes tried there were four found to have a high germicidal action in urine as well as in water. These are: malachite green, brilliant green, proflavine, and acriflavine. There was considerable enthusiasm about the last mentioned preparation and it was believed, for a while at least, that the acme had been reached in the search for a chemical agent which would destroy the gonococcus in dilute solutions and would do no harm to the tissue. Experiments showed that acriflavine inhibits the growth of the gonococcus in a dilution of 1,00,000. This is about 600 times the strength of protargol.

More recently, Young, White, and Swartz* have reported a preparation which, in their opinion, is far superior to acriflavine. This substance they name *mercurochrome*, which is a dibrom-fluorescein into the molecule of which an atom of mercury has been introduced. The sodium salt of this compound is the preparation employed and it contains 26 per cent of mercury. According to the authors, the free acid is a red powder, insoluble in water but readily soluble in alkali, forming a fluorescent solution. The salt appears in iridescent green scales. It is slightly hygroscopic and is readily soluble in water. The solution is stable and bears without change exposure to air and moderate heat. Strongly acid urine gives a slight precipitate of the free dye, but in ordinary urine no such change occurs. The solution stains the skin a bright red color, but this is easily removed by washing first with a 2 per cent solution of potassium permanganate and then with a 2 per cent solution of oxalic acid.

In order to determine the penetration of the mucous membrane by this substance, a solution was injected into the bladder of a rabbit. The drug was allowed to remain in the cavity for five minutes, after which it was drawn out and the rabbit quickly killed. Sections made immediately after death showed that the dye had stained the cells of the superficial epithelium and in some places had penetrated even to the muscular coat. Injection of the solution into the ureter showed that the pelvis of the kidney and the renal tubules were stained for a distance from the vertices of the pyramids. Its toxicity was found by experiment upon rabbits and dogs. Intravenous injections of ten milligrams per kilogram, body weight, killed rabbits, but dogs easily tolerated this amount. This seems to justify the authors in claiming that, as used in the treatment of gonorrhea, there is no probability of poisoning the patient. When injected into the genitourinary tract of man there is said to be no sign of irritation. However, if there be a chronic cystitis there may be some complaint of a burning sensation. The authors evidently have gone quite fully into the germicidal ac-

tion of this agent. They give tables showing the results obtained and make the following statement: "Acriflavine is shown to be much less potent as a germicide in even the most concentrated solutions, if allowed to act on the organisms for one hour or less. It surpasses *mercurochrome* in the twenty-four-hour test, at this time period, appearing to be about four times as effective as the mercury compound. It is hardly logical to judge a local urinary germicide by its action on organisms during such a long period of time; a short period of exposure in the test, on the other hand, approximates clinical conditions. If rapid disinfection is a desideratum, as it seems to be, *mercurochrome* is superior to acriflavine."

They also state: "The outstanding fact observed on comparing the germicidal values of *mercurochrome*, acriflavine, protargol, and argyrol, is the rapidity of action of the mercury compound in fairly high dilutions. In one minute it kills *B. coli* or *Staph. aureus* in a dilution of about 1:1,000, a result obtained with none of the other drugs even in one hour. In fifteen minutes its effect is nearly as great as in twenty-four hours, killing *B. coli* in this short time at 1:5,000 and *S. aureus* at 1:10,000. A few tests were made to learn the minimal time in which a 1:100 solution would sterilize. *S. aureus* was killed almost instantaneously; that is, as rapidly as we would introduce the drug, withdraw a sample, dilute in water (to dilute the drug out of action in the agar) and plate. This procedure took no longer than ten seconds. The same test on *B. coli* revealed that a few organisms remained after ten seconds exposure to the drug. Since a 1:800 solution kills this organism in one minute, the time necessary for a 1:100 solution to kill is possibly not more than thirty seconds."

We earnestly hope that these investigators have not been over sanguine in their claims for the new remedy. We have no doubt that it will be tried by many experts along this line and comparisons will be made not only with their dyes, but with the old silver compounds and potassium permanganate solutions. There is an old saying that there is nothing that lies like figures. Every man who has done experimental work no doubt

*Young, White and Swartz: *Journal American Medical Association*, 73, 1483.

is ready to say that nothing lies like the first experiments a man makes. He is seldom able to confirm them in full.—V. C. V. in *The Journal of Laboratory and Clinical Medicine*.

THE PROHIBITION EXPERIMENT.

Our Government is now making the biggest physiologic and psychologic experiment ever made in the history of the world. Instead of employing rabbits and guinea pigs, we are making this experiment on about 110,000,000 human beings. The medical profession must not permit this great experiment, with all its side issues, to escape observation. In different localities different manifestations of the effect of the experiment will be in evidence. No one thinks, at least it is hardly supposable that any one thinks, that everybody will immediately abstain altogether from alcoholic stimulants. In the large number of cases of poisoning by wood alcohol, and possibly in some instances by amylic alcohol, we have a manifestation of the recklessness with which some people follow their tastes even if the taste be a depraved and abnormal one. However, such instances as these should not give us much trouble. The man who will drink wood alcohol is either so ignorant or so thoroughly abnormal on account of his depraved taste that his life can't be worth a great deal to the state. We shall, therefore, not shed any tears over these losses, except in such instances where they fall upon innocent or ignorant companions. The psychology shown in this experiment is well worthy of study.

Up to the present time our observations have been confined largely to those who were most earnest in securing prohibition. It seems that, to the majority at least of those of this class, their success came rather unexpectedly. They had not dreamed that prohibition would be brought about so suddenly, and that the lid would be clamped down so tightly. Among our acquaintances many most estimable men and women belonging to this class, as soon as they saw that prohibition was likely to be a fact, rushed to centers of supply and bought, many of them at fabulous prices, small or large quantities of alcoholic drink. It seems that they had never really convinced them-

selves that under all conditions they could do without stimulation. They did not know how soon they would have influenza or something else for which whiskey is reputed to be beneficial. It might be asked whether man has ever known or suffered from any ill in which belief in the beneficial action of alcohol has not been expressed, by some one at least. Years ago when alcohol was plentiful and when teetotalers were not so numerous, even the most devout prohibitionists believed that whiskey was a good thing for snake bites, stings of poisonous insects, for rheumatism, for bad colds, for malaria, in fact for most of the ills that human flesh is heir to. It is difficult for us shake off these old beliefs and their continued influence upon us led the best of us to try to lay in a little stock before the possibility of getting alcoholic drinks was closed off entirely. We need not be afraid that our prohibition friends who have been laying in their supplies are going to be converted into drunkards. Nothing of this kind will happen. There is apparently innate in man a desire to possess that, the possession of which is difficult. We dare say that a close search in the cellars and cupboards of many of our prohibition friends, both male and female, would disclose the hiding places of bottles containing various kinds of liquid refreshment. These people have stored away these bottles, not with the intention of drinking their contents, but simply that they might have something which the ordinary individual does not possess or, at least, has difficulty in securing.

We are sorry to see that the distribution of whiskey is to be placed at the discretion of the medical profession. According to the latest reports, any doctor may under certain forms prescribe whiskey, not more than eight or ten ounces every ten days, for any individual. Now the reputable physician is not going to have anything to do with this matter. It will fall, we predict, largely into the hands of the disreputable practitioner, and that it will be abused there can scarcely be any doubt. We are prohibitionists, but we do not believe that the 110,000,000, more or less, of our people are going suddenly to discontinue altogether the use of alcoholic beverages.

ages. If the movement now in force can be carried far enough to do away with the saloon and the excessive drinking which has characterized many classes, it will be a blessing. We are sure that the better class of physicians need no caution as to their prescription of alcohol. So far as we know, the medical profession as a whole, has already repeatedly and plainly stated that alcohol in no form is an essential in the treatment of any disease. Notwithstanding this fact, within the last few months, the public as a whole, has apparently acquiesced in the decision of the government that whiskey shall be used, even quite largely, for medicinal purposes. If physicians find that alcohol is essential or is even beneficial in the treatment of any disease, they should record the observations upon which their judgment is formed and should lay their conclusions before the profession. As we stated in the beginning, it is a physiologic and psychologic experiment on a great scale, and the reactions resulting from this experiment should be observed, recorded, and studied most thoroughly.—V. C. V. in *The Journal of Laboratory and Clinical Medicine*.

EPIDEMIC ENCEPHALITIS.

By animal inoculation and cultural studies, Leo Loewe and Israel Strauss, New York (*Journal A. M. A.*, May 15, 1920, investigated the nasopharyngeal washings and the cerebrospinal fluids of patients suffering from epidemic encephalitis. They report their results and point out their value in diagnosis. Two c.c. of a filtrate of the nasopharyngeal washings, containing thick mucopurulent discharge, from an epidemic encephalitis patient, were injected subdurally into a *Macacus rhesus* monkey. One week later the animal developed apathy, elevation of temperature, and paresis of both hind extremities. This condition persisted for eight days, and then gradually disappeared. Lumbar puncture on the sixth day of the illness revealed clear fluid under increased pressure. There were 16 cells per cubic millimeter, mostly lymphocytes. The nasopharyngeal washings from fourteen other patients with epidemic encephalitis were injected into a total of thirty rab-

bits. Twenty-five of these animals were examined postmortem, fourteen showing the characteristic lesions to a greater or lesser extent. The lesions consist of meningitis with round cell infiltration, perivascular and adventitial infiltration with mononuclear cells, focal infiltration with round cells, and punctuate hemorrhages with edema. These lesions were present singly, but most often combined. It required from one to fifteen days for the animals to succumb. Nine of the fourteen rabbits showing lesions were dead within four days. The short period usually required enhances the value of the test. The diagnosis was confirmed by animal inoculations in eleven of the fourteen nasopharyngeal washings tested, or 78 per cent. The method was of distinct practical value in two instances. Filtrates of nasopharyngeal washings from seventeen patients with epidemic encephalitis were cultivated on the kidney-ascitic fluid medium, with positive findings in eleven cases. In five instances the organism was recovered from the brains of animals injected with the virus of these nasal washings, and in three instances, from the brains of rabbits injected with the organisms isolated from these nasopharyngeal washings. Cerebrospinal fluids, drawn in sterile fashion from sixteen patients having epidemic encephalitis, were injected intracranially into rabbits in amounts of from 0.25 to 1 c.c. Fifteen of the twenty-nine rabbits that died showed the characteristic microscopic lesions. Animal inoculation, therefore, served to confirm the diagnosis in twelve of the sixteen cases tested, or 75 per cent. Cerebrospinal fluids have yielded the filtrable micro-organisms in eleven of the twenty spinal fluids cultivated. It was found in one case on direct smear of the sediment of the centrifugalized spinal fluid. These strains were carried in one instance as far as the eighth generation. The same organism was recovered from the brains of eight rabbits injected with the spinal fluid itself, and from the brains of four rabbits injected with the organism derived from these spinal fluids. The filtrate of nasopharyngeal washings from a patient with influenza complicated by bronchopneumonia and sinusitis was injected intracerebrally into a *Macacus cynomolgus*,

with entirely negative results. Cerebrospinal fluids of four cases (brain abscess, brain tumor, psychasthenia and uremia) were inoculated into nine rabbits in amounts of from 0.25 to 1 c.c. The brains of the two animals that died showed no gross or microscopic lesions. Cultures were made of the cerebrospinal fluids in seven neurologic cases and one case of uremia with entirely negative results.

ANAESTHESIA RESEARCH.

At a meeting of the Board of Governors of the National Anaesthesia Research Society held in Cleveland in March, it was voted to have the annual convention of the society at Pittsburg the week of October 4, this meeting to be in conjunction with that of the Interstate Anaesthetists' Association and the Pennsylvania Medical Society. It is possible that the Western Pennsylvania Dental Association also will join in the meeting.

In order to augment interest in the primary purpose of the Society, which is research, the governors voted \$200 to be apportioned in prizes for the best papers on research in anaesthesia, such papers to be read at the national meeting. This offer is open to all students, surgical, medical and dental practitioners in the United States.

Canvass of hospitals having revealed need for a uniform anaesthesia chart, a committee of three was appointed to prepare forms. The committee consists of Dr. A. F. Erdman of Brooklyn, Dr. A. H. Miller of Providence, and Dr. E. I. McKesson of Toledo. It was also decided to prepare and publish at the earliest moment possible a monograph on the best practices in anaesthesia in obstetrics.

Announcement was made of the acceptance of the following well-known physicians, dentists, and anaesthetists as members of the Research Committee: Dr. F. C. Mann, Rochester, N. Y.; Dr. John Evans, Buffalo, N. Y.; Dr. A. E. Guedell, Indianapolis, Ind.; Dr. Wm. Harper DeFord, Des Moines; Dr. W. E. Burge, University of Illinois; Dr. Wm. Hamilton Long, Louisville, Ky.; Dr. J. Griffith Davis, Baltimore, Md.; Dr. J. J. Buettner, Syracuse, N. Y.; Dr. Tyler, Philadelphia; Dr. Isabella C. Herb, Chicago; Dr. A. F. Erdman,

Brooklyn; Dr. A. H. Miller, Providence; Dr. W. B. Howell, Montreal, Canada; Dr. R. S. Hopkinson, Milwaukee; Dr. Oel E. Lamphear, Kalamazoo; Dr. W. I. Jones, Columbus; Dr. Theo Casto, Philadelphia; Dr. S. P. Reimann, Philadelphia; Dr. John Polak, Brooklyn.

UTERINE RUPTURE AFTER PITUITARY EXTRACT.

Alice F. Maxwell, San Francisco (Journal A. M. A., May 15, 1920), records the case of a woman, aged 44, multipara, who at term had a sudden hemorrhage without pain. Examination revealed a soft abdomen, left occipito-anterior position, with a floating head. The cervix was undilated, and there were no signs of hemorrhage. The uterus was irritable, and contracted irregularly. One hour later the membranes ruptured spontaneously. Five hours later, weak pains began. Because of the good condition of the mother, the absence of fetal heart sounds and the cessation of all signs of hemorrhage, there was no indication to deliver the patient. One-third c.c. of pituitary extract (pituitrin, B. W. & Co.) was given intramuscularly, and the pains, which had been irregular, became more frequent and stronger. For one and a half hours the advance of the head was slow but steady, and then the pains became very weak and infrequent. The patient's condition at this time was good. With the head at the level of the spines, one-third c.c. of pituitary extract was repeated. Contractions began immediately, but were not tetanic, yet in a few minutes the patient complained of air hunger, went into extreme shock, and died within a few minutes after the administration of the drug. At necropsy when the abdomen was opened, there was considerable free blood in the pelvis. The fundus of the uterus was intact, but the entire lower uterine segment to the right of the midline posteriorly was so thinned that only the peritoneum remained, and the body of the child could be seen through this layer. Here there were two slit-like ruptures of the peritoneum about 4 cm. long. When the uterus was opened, the placenta was found attached to the fundus, but had separated over an area about 5 cm. in

diameter. This condition explained the bleeding during pregnancy. An incomplete rupture was present on the right side, extending into the broad ligament through the uterine vessels. There were no predisposing causes of rupture in this case, that is, no cicatrix from previous operative procedures or sepsis, nor prolonged labor, the duration from first pain to time of rupture being less than six hours. Pituitary extract employed in a conservative manner was administered in the presence of well established indications and in doses well within the limits of safety, with disastrous results. This report should serve to emphasize that: 1. There is danger in the indiscriminate use of hypophysial extract in labor, especially in the doses usually given, namely, 1 c.c. ampules. 2. Even when employed for the strictest indications and in small doses, complications may ensue so rapidly that they cannot be met adequately even in well equipped hospitals.

BUSINESS CHANGE.

The medical and dental professions of the United States will be interested to know that the Frank S. Betz Company, of Hammond, Ind., who recently opened a complete exposition and sales room at 6 and 8 West Forty-eighth Street, New York City, have purchased the entire stock and business of the Crown Surgical Instrument Co., located on Eighth Avenue, near Forty-ninth Street, and will retain the services of the entire Crown Surgical Company's organization, including Mr. A. G. Roberts, who will manage the new Betz' store at 6 and 8 West Forty-eighth Street.

The Crown Surgical Instrument Co. was organized seventeen years ago by Mr. A. G. Roberts. The business was developed to the very highest standards, and the house enjoyed a reputation for the quality of its products and service, and established it as one of the leading surgical supply houses of the world.

The Frank S. Betz Co. has heretofore operated on a direct mail order basis. The demands of the medical and dental professions are such that it was necessary to give personal service to the New York physicians and

dentists, and the store at 6 and 8 West Forty-eighth Street was opened for this purpose.

With the unlimited manufacturing facilities of the Frank S. Betz Co.'s plant at Hammond, Ind., combined with the co-operation and good will of the Crown Surgical Instrument Co., in New York City, the medical and dental professions can be assured of the very best service and the highest quality of merchandise.

RUBBING IT IN A LITTLE TOO MUCH FOR THE GOOD OF THE NURS- ING PROFESSION.

In one sense the increase in the charges on trained nurses from \$25 to \$35 and \$40 per week may be justified, for we realize that nurses have to pay the increased cost of wearing apparel and everything else that is purchased, but in another sense the decided boost is not justified because the nurse is furnished board and lodging while nursing, and in reality it is the cost of food which enters most largely in the drain on incomes. Then, too, this demand of some trained nurses that duty shall consist of eight hours only at one stretch is "rubbing it in" a little too much for the good of the nursing profession. Scant wonder that there is a demand for a lowering of the nursing standard, which is being met by certain nurses' training schools requiring about one-third or one-half the time formerly required to complete the course. The "practical nurse" also is becoming more popular, and to add to the woes of the trained nurse the public is beginning to take more kindly to hospitals for any and all kinds of sickness, merely as an economic measure. In fact, hospitals are now full to overflowing with many patients who would remain in their comfortable homes except for the exactions and demands of the trained nurses. The average family cannot afford trained nurses at the advanced rates, and many families cannot pay the faithful doctor anything but the most modest fees, and all too often the doctor charges his account to charity, whereas the trained nurse seldom if ever renders services without being adequately paid. Nursing is a noble profes-

sion, but it is disgraced by those nurses who refuse to take only the easy cases, who make unreasonable exactions as to conditions of service and who, on the whole, make their work purely a matter of convenience, comfort and profit to themselves. Good nurses are appreciated and should be well paid, but they should consider the duty involved in caring for the sick and suffering who not always can be classed with the easy cases when requiring a nurse's care and are not always wealthy enough to afford two or three nurses, on eight-hour shifts, at \$35 and \$40 per week. We have the greatest admiration for the well trained, conscientious and faithful nurse, and we will aid her in securing appropriate compensation and reasonable treatment from those who employ her, but we believe that the growing objection to so many trained nurses who are commercializing their profession is thoroughly justified. Nursing associations can do nothing better for the nursing profession than to purge its membership of those who evidently are trying to find out how much the sick can be penalized.—Exchange.

GUMMA OF THE BREAST.

Lloyd Thompson, Hot Springs, Ark. (*Journal A. M. A.*, March 20, 1920), cites the case of a woman, complaining of "nervousness" at times, pains in the arms and neck, frequent headache and a lump in the breast. An older sister was operated on for cancer at 36. The mother was living and well at 65. Her personal history had no bearing on the case, except that she had had two miscarriages. The husband had suffered from syphilis for three years before marriage, but was assured by his family physician that he was cured. The patient never showed any outward manifestations of the disease, had enjoyed quite good health all her married life and her blood Wassermann reaction was negative. The lump in the breast was noticed in November, at which time it was about the size of a walnut. It gradually became larger, and during the summer of 1919 she was examined by a surgeon and had a Wassermann test made. This was reported as weakly positive. A short time before coming to Thompson she

was examined by another physician, at which time her blood Wassermann reaction was strongly positive. When Thompson first saw her, the blood Wassermann test by the classical method, with cholesterinized antigen, was x x x; in the ice-box and by the Thompson modification, x x x x. A diagnosis of gumma of the breast was made and the patient placed on treatment. Mercuric benzoate was administered intramuscularly in doses of 0.02 gm. daily. Potassium iodid was given by mouth, 10 drops three times a day increasing 5 drops daily until 100 drops three times a day were reached. Neo-arsphenamin in 0.6 gm. doses was administered at weekly intervals for six weeks. In view of the history of syphilis in the husband, the two miscarriages, the positive Wassermann test and the result of the therapy, there is no doubt in Thompson's mind that this case was one of gumma of the breast.

MEDICAL SPEECH.

The following are abstracts of articles in the issue of *The Journal*, May 8, 1920:

James S. McLester, Birmingham, Ala., (*Journal A. M. A.*, May 8, 1920), offers some valuable suggestions to medical authors with regard to the preparation and presentation of papers. Although he fears being misunderstood, he likens the successful medical writer to the ad writer in that the legitimate aims of the two for a certain distance run parallel. The object of each is to say a great deal in few words, to adhere consistently to the main idea, to emphasize the right point, to hold the reader's interest, and to be readily understood. He says in part, "We often wonder why the literature of some of our English colleagues is so much more readable than our own. I think I know the reason. Is it not that, having little or no conscience for good English, we do not try? In this connection I might repeat the oft quoted statement that genius is an infinite capacity for taking pains. Careful revision of composition and paragraphs, and repeated revision of sentences is essential to the production of readable English. It is said that a good writer never ceases his sentences, and that the lines which

appear easiest are often the result of greatest effort. To go over it all time and again, to see to it that compound sentences are well balanced, to put the important word at the end of the sentence, and to avoid redundancy—this is the price one must pay for a sympathetic hearing and a lasting impression." The physicians who read papers before the sections of the American Medical Association are in possession of facts and conclusions of infinite importance. How necessary, then, that knowledge of such inestimable value be presented through a medium which is worthy of the subject! A poor lens in a microscope will obscure and distort the object one desires to study; in like manner will imperfections in the expression of our ideas mar and obscure and nullify the thoughts we wish to convey.

TRIPOD METHOD OF WALKING WITH CRUTCHES.

Complete paralysis of both lower extremities is not necessarily a bar to some form of ambulatory activity according to Robert W. Lovett, Boston (*Journal A. M. A.*, May 8, 1920). It has been found, in aiding patients with such a distribution of paralysis to walk, that if the knees are kept from flexing by simple spints, the loss of the gluteus maximus can be compensated for by a peculiar method of using the crutches for what may be called "tripod" walking. If the crutches are placed apart and slanted well forward at their lower ends, they form the two anterior points of a tripod, while the third and posterior part of the tripod is formed by the body of the patient inclined forward at its upper part, with the feet well behind. The apex of the tripod thus comes at the shoulder level of the patient, his body and legs forming the posterior support of the tripod, and the crutches the two anterior supports. Such a position is stable because (a) the base of support is a large triangle bounded by the three points of support because hyperextension of the hips is checked by the "Y" ligament of Bigelow, and, with the knees stiffened by the braces, the center of gravity falls in front of the hip joints and keeps them

extended and firm. A paralyzed patient with no power below the waist can stand unsupported easily in this position, provided there are no contraction deformities in hip, knee or ankle.

PROGRESS.

The rapid growth of the American chemical industry is indicated by the announcement that the Abbott Laboratories recently purchased twenty-six acres of ground in North Chicago and will soon commence building an additional plant for the exclusive manufacture of synthetics and other chemicals.

Physicians and pharmacists are enthusiastically encouraging the idea of American independence in pharmaceutical and chemical lines.

The Abbott Laboratories is a leader in developing, under government license, such important products as Barbitol (Diethyl-barbituric acid), cinchophen and procaine. They are also supplying anesthesin, Dichloramine-T, Chloramine-T, nucleinic acid, colchicine, hydrastine, sanguinarine nitrate, leechin and other chemicals. Some of these have been included and will be shown in the scientific exhibit of the American Medical Association at New Orleans in April.

HEALTH INSPECTION.

Health inspection of school children comprises two things: first, limited medical inspection for detecting and controlling contagious diseases, and second, physical and mental examinations to determine the stage of a pupil's development, physical defects, noncontagious diseases and the like. There is a growing consensus of opinion that while the former may be placed under the control of the board of health, the latter should be under the control of the educational authorities, or at least conducted with their full cooperation. In any case there should be concentration of authority and responsibility in the hands of competent experts, and adequate records should be kept.

The latter form of health inspection should be made much more thoroughgoing than is

now customary. The results of recent investigations in child hygiene indicate that the aim and character of elementary education should be revolutionized and the emphasis placed especially on health, normal development, spontaneous motor activities, plays, voice drill and the like; that if the work of the school is to be done successfully in later years special care should be taken at this period to put the child's physical organism in the best condition possible for healthful development. This is the time to care for the development of the vital organs of the body, to protect the sense organs, and to develop habits of healthful activity in the widest sense.

If the hygienist could have his way, the first year of school life, or perhaps the first two years, would be a trial school, in which the teachers would be physicians and hygienists; and the aim for this year would be to determine the child's stage of development, physical defects, etc., and as far as possible to remedy these defects and to foster normal development by ample opportunity for play and other forms of spontaneous motor activity.—*Bulletin Indiana State Board of Health.*

SALAD OIL.

During the last few weeks, one of the departments of Armour & Co., Chicago, noticed that large quantities of their salad oil, under the Veribest brand, were being purchased by druggists throughout the country to such an extent that this department investigated and found that the oil was being used for dispensing as sweet oil; also in the making of creams, lotions, and similar preparations.

Salad oil is one of the purest products made, being manufactured entirely from cottonseed and highly refined. It has a mild, sweet flavor and of light amber color. Perhaps the increased cost of olive oil may have had something to do with the adoption of cotton seed oil.

This salad oil is now refined by a process vastly superior to the methods adopted some years ago. We understand that this oil is smokeless at a temperature of 510 degrees and that during one of the final tests one

of these vials was buried in cracked ice and salt for five hours, and when removed it was absolutely clear.

It is quite probable that the expense of olive oil, linseed oil and other oils may cause successful experiments with cottonseed oil in industries, arts and sciences.

CHIROPRACTIC—LUX ON SUBLUXATIONS.

Members of the medical profession have long been at a loss to know just what "chiropractic" is. They know what "chiropractors" are, but "chiropractic"—that has been a mystery. It remained for the Senate and General Assembly of the State of New Jersey to elucidate. An Act to Regulate the Practice of Chiropractic recently signed by the Governor of New Jersey gives to a palpitating medical world this vital information. Here is the opening paragraph of the act:

Definition of Chiropractic: The term chiropractic, when used in this act, shall be construed to mean and be the name given to the study and application of a universal philosophy of biology, theology, theosophy, health, disease, death, the science of the cause of disease and art of permitting the restoration of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other by hand, thus correcting all subluxations of the articulations of the spinal column, for the purpose of permitting the recreation of all normal cyclic currents through nerves that were formerly not permitted to be transmitted, through impingement, but have now assumed their normal size and capacity for conduction as they emanate through intervertebral foramina—the expressions of which were formerly excessive or partially lacking—named disease.

Lucidity itself! The New Jersey Legislature said, "Let there be light on Chiropractic"—and, behold, it became the "art of permitting the restoration of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities. . . ." Simplicity to the nth power. Bring on your Einstein theory—the New Jersey solons may oblige with a snappy definition.—*Journal A. M. A., May 15, 1920.*

VENEREAL PROPHYLAXIS.

In order to determine, if possible, whether the use of prophylaxis prevents one type of venereal disease more than it does another, a comparison was made by P. M. Ashburn, Washington, D. C. (*Journal A. M. A.*, May 8, 1920), of the relative proportions of the three diseases in the first 2,000 cases in which infection followed the use, and in the first 2,000 in which it followed neglect of prophylaxis. These figures show: Without prophylaxis, gonorrhea, 67.2 per cent; chaneroid, 15.6 per cent; syphilis, 17.2 per cent. With prophylaxis, gonorrhea, 64.5 per cent; chaneroid, 18.9 per cent; syphilis, 16.6 per cent.

LIST OF REGISTRARS OF VITAL STATISTICS (Continued).

Grunday County.—Civil District No. 1, Hugh McClain, McMinnville, R. 7; Civil District No. 2, E. C. Shelton, Altamont; Civil District No. 3, Civil District No. 6, Jno. Gallagher, Pelham; Civil District No. 4, Civil District No. 5, Mrs. E. C. Norvell, Tracy City.

Hamblen County.—Town of Morristown, Civil District No. 1, Civil District No. 4, Miss Belle Fort, Morristown; Civil District No. 2, J. W. Gregory, Morristown, R. 7; Civil District No. 3, J. D. Hays, Russellville; Civil District No. 5, J. A. Talley, Morristown, R. 6.

Hamilton County.—Civil District No. 1, City of Chattanooga, Miss Frances Samuel, Chattanooga; Civil District No. 3, W. M. Sherrill, Chattanooga; Civil District No. 2, Burton Jones, St. Elmo; Civil District No. 4, C. Cofer, Ooltewah.

Hancock County.—Civil District No. 1, Dr. Ben Campbell, Luther; Civil District No. 2, Dr. O. M. Swaney, Treadway; Civil District No. 4, Rogan Willis, Kyles Ford; Civil District No. 5, James Leoman, Lee Valley; Civil District No. 6, Dr. H. T. Trent, Sneedville; Civil District No. 7, H. M. Moore, Sneedville; Civil District No. 8, Chas. Ramsey, Sedalia; Civil District No. 9, W. H. McDaniel, Sneedville; Civil District No. 12, H. S. Harrell, Ewing; Civil District No. 10, Dr. W. J. Seal, Sneedville.

Hardeman County.—Civil District No. 1, Civil District No. 7, Civil District No. 9, Town of Bolivar, Dr. Geo. M. Dorris, Bolivar; Town of Whiteville, Civil District No. 2, W. C. Needham, Whiteville; Civil District No. 3, Edgar Galloway, Hickory Valley; Town of Grand Junction and Civil District No. 4, W. E. Bailey, Saulsberry; Town of

Middleton, Civil District No. 8, F. P. Yarbro, Toone; Civil District No. 6, Enoch Sain, Bolivar, R. 3.

Hardin County.—Civil District No. 1, Civil District No. 2, J. D. Copeland, Cerro Gordo; Civil District No. 3, Mrs. Jennie Dixon, Olive Hill; Civil District No. 4, L. K. Freeman, Savannah; Civil District No. 5, E. E. Tucker, Nixon; Civil District No. 6, H. A. Roberts, Red Sulphur Springs; Civil District No. 7, J. M. Plunk, Adamsville; Civil District No. 8, W. R. Garey, Right; Civil District No. 9, J. T. Fox, Walnut Grove; Civil District No. 10, J. M. Crawford, Sardis.

Hawkins County.—Civil District No. 1, A. J. Stewart, Bulls Gap; Civil District No. 2, Dr. Jno. K. Walters, Rogersville; Civil District No. 3, Miss Ethel Moneyhan, Eidson; Civil District No. 4, Town of Rogersville, Dr. J. S. Lyons, Rogersville; Civil District No. 5, I. T. Jennings, Surgoinsville; Civil District No. 6, Miss Allie B. Jones, Burem; Civil District No. 7, D. S. Mann, Church Hill.

Haywood County.—Civil District No. 1, Lawrence Newsom, Whiteville, R. 3; Civil District No. 2, J. B. Moore, Jr., Dancyville; Civil District No. 3, Mrs. W. H. Maxwell, Stanton; Civil District No. 5, Civil District No. 8, Civil District No. 12, J. R. Thornton, Brownsville, R. 7; Town of Brownsville, Civil District No. 7, Alf Kinney, Brownsville; Civil District No. 9, G. A. Richardson, Brownsville, R. 1; Civil District No. 11, D. C. Rooks, Brownsville, R. 5; Civil District No. 6, Civil District No. 4, Dr. J. C. Norvell, Brownsville.

Grainger County.—Civil District No. 1, D. S. Ritter, Rutledge, Tenn.; Civil District No. 2, W. R. Collette, Noeton; Civil District No. 3, Willis Idol, Lea's Springs; Civil District No. 4, Ed Gilbert, Idol; Civil District No. 5, B. F. Branson, Washburn; Civil District No. 6, Eulah Needham, Powder Springs; Civil District No. 7, J. L. Cameron, Rutledge, R. 7.

Greene County.—Civil District No. 1, W. S. Gray, Chuckey; Civil District No. 2, O. S. Broyles, Greeneville; Civil District No. 3, L. A. Rader, Greeneville; Civil District No. 4, P. S. Cobble, Midway; Civil District No. 5, W. E. Jones, Mosheim; Civil District No. 6, D. A. Morelock, Bulls Gap; Civil District No. 7, Ulysses Frye, Mosheim; Civil District No. 10, Town of Greeneville, Civil District Nos. 8, 9, 12, 13, 18, 22 and 24, H. G. Haynes, Greeneville; Civil District No. 11, L. D. Henard, Baileyton; Civil District No. 14, J. J. Frazier, Tifton; Civil District No. 15, Civil District No. 26, Jno. W. Good, Limestone; Civil District No. 16, Mrs. A. J. Bowlin, Chuckey; Civil District No. 17, C. A. Johnson, Jearoldstown; Civil District No. 19, Mrs. Mollie Pickering, Chuckey, R. 1; Civil District No. 21, Rufus Morrison, Baileyton; Civil District No. 23, Dr. Thos. Cloyd, Mosheim; Civil District No. 25, M. S. Roberts, Greeneville, R. 2.



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THE USE OF RADIIUM IN GYNECOLOGY.*

By John M. Maury, M. D., F. A. C. S.,
Memphis.

The results from radium treatment are in many cases so marvelous that it is difficult to avoid being thrown off one's balance in using it. Though having employed it for nearly three years as a therapeutic agent, I have carefully avoided anything like sensational claims as to what might be expected from its use, and in this short paper I believe I have carefully considered every statement made. During this time I feel that, while there is yet much to learn, I have acquired a considerable amount of information as to what it will do and have likewise learned some of its limitations. One should always bear in mind that it is by no means a universal panacea for all the ills of life, and that it sometimes fails to do in one individual what it has apparently done in another.

Up to the present time, in gynecology at least, the use of radium in cancers has been pretty well limited to those cases in which the disease has advanced too far to expect any results from operation. This, with a new and improved remedy, is as it should be, but results have been so encouraging that many conservative men are now advocating its use in the early cases.

Carcinoma of the Body of the Uterus.—From the standpoint of operative results, by which I mean cures from operation, it has long been known that the body of the uterus is one of the most favorable sites for cancer

to develop. The operative mortality is low and the number of cures is high. Nor does it matter much whether the uterus is removed through the abdomen or through the vagina, though the operative mortality is a little lower by the vaginal route. This being the case, I have preferred hysterectomy to radium, though it has been my practice to follow operation with radium in the hope and expectation of destroying any cancer cells which may be left in the pelvic structures.

In the presence of organic conditions contraindicating operation, such as cardiac, pulmonary and renal pathology, radium may be used with fair prospects of success. Jane-way, of the Memorial Hospital, in S. G. and O., September, 1919, reports four cases of cancer of the body of the uterus treated, with improvement in two cases for periods of two years and two cases clinically cured at the expiration of fourteen and twenty-one months.

Carcinoma of the Cervix.—Cancers of the uterine cervix have been to me a nightmare; a source of worry, regret, failure and despair. As with others, I have tried all of the procedures that seemed to offer any prospect of success. High amputation of the cervix, vaginal hysterectomy and the treatment with cauter, acetone and chloride of zinc have all gone into the discard. The only operative measure for which there can be any excuse is the radical operation of Wertheim, and this can truly be spoken of as a fearful procedure. I do not believe that there is any operation in surgery which equals it in magnitude when it is properly performed. In my experience its field is limited because of the relatively small number of cases presenting themselves

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

for treatment while the disease is still in the operative stage. Its field is still further curtailed because its successful performance requires the highest degree of technical skill and surgical judgment. Its operative mortality in the hands of the ten or twelve best operators in this country is about 17 per cent, while in the hands of the man of average ability, it is fully 50 per cent. In addition, the morbidity is high and the patient is often left with some distressing sequel, such as ureteral, vesical or rectal fistula. Results, though better than from any other operative procedure, are far from brilliant; being only about 25 per cent cured in the hands of our best men.

As has been said, the other procedures hold out no hope to the patient whatever, and in my humble opinion should never be employed. On the other hand, what can be expected from radium?

My first experience was with 50 milligrams of the element. This only led to disappointment. It was almost the same old story. All cases were improved in that the foul discharges and the hemorrhages were controlled, and, as might be expected, therefore, there was a temporary improvement in health and strength, but most cases soon suffered a recurrence, and only six cases out of thirty treated with the 50 milligram dose have remained well. The dose was too small, and, as has been the experience of others, I have found that not less than 100 milligrams of the element radium can be expected to produce results in cancers of the uterine cervix. Since having in use the larger quantity sufficient time has not elapsed for me to give figures, but I can already see better results with fewer treatments.

In estimating results from radium treatment, it is only fair that the cases be divided into (1) Early cases in which the disease is confined apparently to the cervix itself. (2) Those in the operative stage, where the disease is beyond the cervix, but still presenting a condition which affords a fair prospect of complete removal by operation. (3) The late cases, where the disease is beyond operative limits.

Of the early cases treated, I have seen but one report; that of Recasens, of Madrid,

quoted by Janeway, in which of sixteen cases treated, all were apparently cured, some of them having gone three years since treatment was applied. This same writer reports 60 per cent of cures in inoperable cases. I do not know the writer but give the figures for what they may be worth.

Coming nearer home, and quoting Clarke, of Philadelphia, in whose statements I have implicit confidence, we have seventy-four cases of carcinoma of the cervix and four of the body of the uterus in whom fifty-five were alive and free from all evidence of the disease two to thirty months after treatment. Janeway himself reports seventeen carcinomas of the cervix in which twelve were clinically cured at periods varying from three and one-half years to six months after treatment.

With these results a question might well be raised as to the propriety of ever resorting to operation in cancer of the cervix.

Fibromata.—In fibromata of the uterus a clinical cure can be promised in practically all cases and an anatomical cure in many. In other words, the hemorrhages and incidental symptoms can be permanently relieved and reduction in size of the tumor, sometimes to the vanishing point, can be brought about by the intra-uterine application of radium. The changes are brought about partly through direct action on the tumor cells, indirectly through changes brought about in the blood vessel walls and the effect of radium on the ovaries.

In the selection of cases for radium treatment I have followed the suggestions of Clarke and have avoided the large tumors and those of any size complicated with inflammation of the appendages. The cases associated with acute salpingitis are, of course, to be let alone under all circumstances, while those in which a chronic salpingitis is present run the same chances of having the condition made acute by the intra-uterine use of radium as by any other intra-uterine manipulation. The large tumors are not treated because of, on the one hand, the possibility of there being present a malignant degeneration, and on the other because such a large number have a chronic salpingitis which it is impossible to diagnose. In my service in the

Memphis General Hospital, where most of the patients are negroes, nearly every fibroid of any size is complicated by the presence of salpingitis.

Uterine Hemorrhages.—It is in these cases of uterine hemorrhage without demonstrable cause that radium is a specific. These cases go under the name of myopathies, hyperplastic endometritis, polypoid endometritis, idiopathic uterine hemorrhage, and so on, but are probably in reality the result of disturbed or unbalanced ovarian secretion. Formerly they were subjected to curettage, which accomplished nothing, the curette having to be used again and again. The scrapings from these uteri show a condition in which the glands are enlarged, tortuous, reduplicated, and seemingly increased in numbers; practically the same condition found after menstruation. Some of them occurring in young individuals can be cured by the administration of pituitrin. They can all be cured by treatment with radium.

In young women it is desirable not to induce the menopause. This can usually be avoided by graduating the dose so that a period of amenorrhoea lasting a few months is brought about, when, on the resumption of menstruation, it is of a normal type. Following this plan of careful dosage, it may be necessary to give more than one treatment. In women of 40 and over, the dose should be large enough to, at one treatment, insure the menopause.

Carcinoma of the External Genitals.—Because of the early metastasis which occurs in carcinomata of the external genitals it is my preference to employ surgery and follow it with prophylactic radiation. My reason for this is that I have not found secondary carcinomas either in the lymphatics or elsewhere to yield as readily to treatment as do the primary growths, and I feel much safer if the lymphatics are removed by surgical means.

In kraurosis, urethral caruncle, as in keloids resulting from chancreoid or other ulceration, results are gained with radium very far in advance of any other form of treatment.

DISCUSSION.

Dr. J. B. Neil, Gordonsville: I am especially interested in the use of radium. While assisting Dr.

Wm. B. Coley at the Memorial Hospital in New York I was thrown in intimate contact with the radium clinic. You might be interested to know something of this clinic. They have four grams of radium, worth over \$400,000. They only use the emanation or gas given off from the radium. This is collected by means of a special apparatus which sucks the gas into small capillary glass tubes, which are detached and the amount of emanation in each tube measured by means of the electroscope. In this way they conserve their radium supply. From four grams of radium they collect about four hundred millicuries of gas in twenty-four hours. This gas is practically exhausted in five days. You can figure the exact depreciation from day to day. All of this work is done by a trained technician (Mr. Fiella). They treat all types of malignancy and allied diseases.

Since this discussion is confined to cancer of the uterus, I will tell you of their method of treating it. This branch of the work is under the control of Dr. Harold Bailey. He has devised an ingenious application which he calls his bomb. It is a lead capsule which fits snugly into the vagina. This capsule is filled with uranium. On one end is attached a heavy wire about a foot and a half long. On the other end is a receptacle for the radium, which is screened with one-half mm. of German silver and two mm. of lead. This end is in direct contact with the cervix, and carries 500 millicuries of radium emanation. This is left in place for two hours. Then the bomb is changed so the rays will strike the left parametrium for two hours and then the right parametrium for two hours. This gives you a dosage of 3,000 millicurie hours. He then applies his pack, which is simply a wood block four cm. high, surrounded by lead with exception of the base, which goes next to the skin. This pack carries 1,000 millicuries. It is applied over the abdomen directly over the uterus for two hours, to the left of the uterus for two, to the right of the uterus for two hours. It is then applied over the sacrum for two hours, to right of sacrum for two hours and to left of sacrum for two hours, giving a dosage of 12,000 millicurie hours combined with the 3,000 millicurie hours in the vagina, including a total of 15,000 millicurie hours. In this way the entire pelvis is rayed and there is the greatest possibility of striking every cancer cell.

I believe we will see radium do a lot of harm in the hands of men who have had no training and do not understand the dosage or the action of the alpha, beta and gamma rays. We are riding on the crest of the radium wave. Every surgeon who has a few extra thousand dollars buys himself some radium and begins to experiment with it. It is still in the experimental stage to a certain extent, and these experiments should be carried on by trained specialists, with sufficient amount of radium to meet all their needs.

I think the general consensus of opinion is that radium is the treatment of choice in inoperable

cancer of the cervix. It is wonderful how these cases improve. The hemorrhage ceases, the odor disappears and the pain is relieved. They gain in weight, and feel very much better. These inoperable cases can be converted into operable cases by the use of radium, blood transfusion and general supportive and rest procedures. By this means the mortality can be greatly reduced. The initial dose should be the maximum dose, for it has been proven than when the skin is once subjected to the radium rays it becomes sensitive to a second dose if given in a day or two, and you are more apt to get a radium burn. And again, the dose should be sufficient to destroy all cancer cells. If not, some of the more distant cells are liable to be stimulated to renewed growth. It has been proven experimentally that this does happen.

In regard to fibroids, I think that myomectomy in those cases where it is possible is the proper procedure. That radium should only be used on inoperable fibroids, especially in women under forty years of age, because radium will destroy the ovarian function if the dose is sufficient.

Dr. E. T. Newell, of Chattanooga: In regard to the treatment of fibroid tumors, I have had some experience in treating them with radium for the past three years. Of course, you have to select your cases. Radium is not applicable in all cases of uterine fibroids, to my mind, nor in complicated cases. Where there is no pyosalpinx, hydro-salpinx, cysts or calcified uteri, radium is the best treatment. As I stated before, if there is absolutely no complication and no indication of a previous inflammatory tubal condition or cystic ovary, then you will get better results by the use of radium than by any other method. This has been demonstrated by some of the best operators of the country. Such men as Howard A. Kelly, John G. Clark, S. M. D. Clark and others have shown this to be true. Of course, you are going to get some shock following all your operations for hysterectomy. Hemorrhage you will certainly have in a few cases, not to mention sepsis and pulmonary embolus, which, while rare, do occur with more or less regularity. All of which produces a certain definite mortality in the hands of the best operators.

In the early cases of carcinoma of the cervix it has been stated that it was not proper to use radium in this class of cases. But it seems to be the consensus of opinion that in the majority of cases the use of radium in carcinoma of the cervix, when they come to you with the foul smelling discharges, hemorrhages, and when they are emaciated, and in a great many cases when they are so weak that they can hardly walk that they will improve greatly under radium treatment. Kelly, in a recent report, states that they have been able to produce five-year cancer cures with radium in carcinoma of the uterus where there was no general metastasis, especially if the metastasis had not spread to the broad ligaments. Even where they have involvement of the

vaginal walls and the bladder wall and the rectum, they have succeeded in curing 25 per cent of the cases and getting five-year cures. Now, from the operative statistics that we have of cancer of the uterus, favorable and unfavorable; take all of the cases—not selected cases, but all of the cases that come to you—and if you only get 25 per cent of cures, five-year cures, from this class of cases, that alone is an argument in favor of the use of the radium. Dr. Janeway has control of radium in the Memorial Hospital, and they have perhaps more radium than anybody in the United States, unless it is Dr. Kelly, of Baltimore. Both use principally radium emanation. Radium gives off a gas emanation—this is the active substance in radium, anyway, and can be used in glass tubes of different sizes and amounts in the treatment of malignancy and otherwise.

I had the pleasure of listening to a radium discussion in the radium section of the American Medical Association at Atlantic City in June. There was a discussion in regard to use of large amounts of radium. There was a doctor present from Topeka, Kansas, that had 200 milligrams of radium, so he stated, and after he had heard the discussion as to the use of the huge amounts of radium, he said that he felt like going home and throwing his radium away. He said that he had labored hard to purchase the 200 milligrams at a cost of \$20,000, and after hearing the discussion in regard to using radium in large doses he concluded that he did not have enough to do any good. Dr. Janeway arose and said: "Don't do that; you can get just as effective results with what you have as with the larger doses. You can also get good results from radium emanation; you can apply your radium in either way and accomplish good results. He stated that with the use of 25 milligrams of radium that you could penetrate the tissues at a distance of from four to five centimeters away from the tube.

Dr. John M. Maury (closing): In reply to the remarks as to the amount of radium to be used at one time:

My first purchase of radium was to the amount of fifty milligrams, as the manufacturers assured me that this was a sufficient quantity for my needs. But I soon found that it was not enough. Investigation showed that my results were not equal to those of men who were using a larger amount. I, therefore, increased the amount in my possession to one hundred milligrams, which I think is entirely sufficient for all carcinomas of the cervix.

In using this larger amount my results have been greatly improved. It is true that some use even larger amounts than the one hundred milligrams, but after trial I find that one hundred milligrams will produce such changes in the vaginal structures that I doubt the advisability of using more. It is possible that even smaller doses will suffice, but I am sure my results with one hundred milligrams are much better than when I used fifty milligrams.

DRAINAGE OF THE PERITONEUM.*

By Richard A. Barr, M. D., F. A. C. S.,
Nashville.

I have been prompted to present this paper by a discussion which took place before the Southern Surgical Association at New Orleans last December. The statements made by a number of surgeons, prominent through the South, with regard to the frequency and character of drainage used, rather amazed me. Some even advocated the old Mickulitz drain in pelvic infections—a mere matter of packing the pelvis full of gauze—and some even used iodoform gauze for this purpose.

To reassure those who may be afraid that I am going to take up the question of whether or not it is possible to drain the peritoneum, and how long it takes drains to be shut off by adhesions, I wish to state right here that this is far from my purpose. It has been my conviction for many years that drains have a local value only. More than this, it has grown upon me with increasing experience, and from study of the reported observations of others, that even badly damaged local areas of peritoneum will take perfect care of themselves if not handicapped by the presence of drains.

I make no claim whatever of originality or priority in trying to dispense with general and local peritoneal drainage. Many others have the same ideas and have had them longer than myself, but I believe that I drain less often than the majority of my friends and neighbors. It is my purpose to report my results in a short summary of such cases as are most available for the purpose, so that you can make such deductions as you think warranted from a short series of cases. I am assuming that the disadvantages of peritoneal drainage are apparent to all. No surgeon would drain if he was reasonably sure that it was not necessary. The adhesions provoked are in themselves sufficient contraindications.

It was with no slight trepidation that I began violating the well established prece-

dents more or less firmly fixed in the surgical mind by years of increasingly successful usage. My earlier ventures were in the comparatively safe field of pelvic infections. It was then, and still is apparently, customary to pack gauze strips into the ragged area left by the removal of an infected uterus and appendages and bring the ends out through the abdominal wound or through the vagina. Frequently a special cul-de-sac incision was made in those cases in which the uterus, or at least the cervix, was not removed. Tube drains were sometimes combined with gauze packing.

Since in many of these cases the infection was of low grade, and since it was quite apparent that the gauze merely served to localize the infected area and hasten its sequestration by adhesions, and that real drainage was not established until the gauze plug was removed, it occurred to me that the pelvic area, lying at the bottom of the peritoneal cavity, could be relied upon to do its own localization, and the distress of removing the gauze spared these patients.

In this connection I wish to state that it has never been my practice to repack cavities so persistently as is done by many surgeons. Gauze which has been left in a wound for any purpose is never replaced by me for the mere purpose of keeping the wound open. Furthermore, I remove rubber drains earlier than is the general custom, and do not go through the stages of shortening them or replacing by others of smaller calibre. If actual foreign bodies are removed from deep areas these will take care of themselves as promptly as the more superficial tissues, provided the skin edges are kept apart until they begin to granulate and so cannot become adherent.

On this basis of trusting to spontaneous localization, I began leaving out the gauze packing in full expectation of having a pelvic accumulation that would have to be evacuated by new incision or by opening the vaginal wound. To my surprise this proved to be seldom necessary. My courage grew with experience and while at first I selected the most favorable appearing cases for dispensing with packing (not justifiably called drainage) I soon left it out as a routine. Only the

*Read at annual meeting of West Tennessee Medical and Surgical Association at Jackson, May, 1920.

very exceptional case in which I needed to control oozing, was packed with gauze.

Emboldened by favorable results gotten in pelvic work, I began restricting the frequency and character of drainage in other locations. Appendix cases particularly were closed that would ordinarily have both local and general drainage. In work on the gall-bladder and bile ducts I still drain in every case to the transverse fissure of the liver for fear of bile leakage, but nothing is used for drainage purposes except a small soft rubber tube. Packing is occasionally added to control oozing.

The cases I will summarize are only those of pelvic infection, ectopic gestation and appendicitis. They are all consecutive cases done at my private infirmary. The records of such work as I have done at other institutions could not be made available without great annoyance to all concerned. These cases will average rather high as to the seriousness of the pathology present as compared to private surgery ordinarily done.

Many cases were brought from a considerable distance to Nashville and so might be classed as delayed, but no appendix case was refused immediate operation (with one partial exception to be mentioned later). No appendix cases were Ochsnerized. This fact is not mentioned for other purposes than to make it clear that had appendix cases were not postponed to the possible disadvantage of medical rather than surgical statistics.

Of sixty-five consecutive cases of pelvic infection (of uterine origin, so to speak) prior to March 1, 1920, sixty-two were treated by hysterectomy, usually of the "subtotal" type, with coring out of the cervical mucosa. In one of these cases not hysterectomized, both tubes and ovaries were removed, in one both tubes and one ovary were removed, and in the third the tube and ovary of one side were removed.

Of the sixty-five cases five had gauze packing, the ends being brought out through the abdominal wound in four cases and through the vagina (cul-de-sac incision) in the other.

There were two deaths in the sixty-five cases. Gauze packing was used in both of these. One was the case in which only the tubes and ovaries were removed, the uterus

being left for some reason which I do not remember and which the record does not show. In this case the ends of the packing were surrounded by rubber tissue and brought out through the abdominal wound. The other death was in a patient who had subtotal hysterectomy and gauze packing brought out through a cul-de-sac incision.

While the deaths were both in drained, or packed, cases neither could be attributed directly to the packing, though one of them had obstruction symptoms. It would be just as unfair to make this inference as to compare the one death in sixty-two hysterectomies to the one death in three operations on the appendages alone. It is rather to the sixty cases that recovered without any packing or drainage whatever that I invite your attention.

Of these sixty cases four had considerable vaginal drainage of pus some days after operation. This occurred spontaneously in three cases and followed dilation of the stump of the cervix uteri in the fourth. In each case to all appearances the pus came from the cellular tissue below the peritoneum.

Of twelve tubal gestations, one had gauze packing with the ends brought out through the abdominal wound. All made complete recoveries, though several were closed with quite a good deal of blood still in the cavity.

The appendix cases I have divided into suppurating, perforating and gangrenous. All cases, with one exception included because the patient died, not definitely within these classes have been excluded. Subacute and chronic cases, recent acute appendicitis, acute appendicitis with naked eye evidences confined to the mucous membrane of the appendix, have all been excluded. A number of cases have been included in which there was little evidence of extension beyond the immediate neighborhood of the appendix, but all were frankly purulent, and many had exudate free in the peritoneal cavity. The difficulty of making a line of cleavage between strictly localized and what might be called generalized peritonitis caused me to include both classes under one head.

There were 152 suppurating appendices and of these cases, eighteen were drained, the drain in every case being a rubber tube,

and in some cases gauze packing was added. Two had tube drains into pelvis. Sixteen were drained merely to site of appendix, eleven through stab wounds and five through operating wound.

In this series there were two deaths, one from a drained case in which intestinal obstruction contributed largely to the bad outcome. In the other case the evidence at operation were so strictly confined to the appendix that it would not have been included if the patient had not died. The cause of death was undetermined, thyroid intoxication being the most reasonable explanation.

The one patient previously referred to as being refused operation should be reported here. It was a case of general suppurative peritonitis probably due to appendicitis. The patient was a child and in desperate condition. Under local anesthesia a short incision was made above the pubis and a tube introduced into the pelvis. This case can have no value either for or against drainage and is not classed as being operated on for appendicitis.

During the period covered by the cases reported there were thirteen cases of definitely localized abscess, probably of appendiceal origin, which were merely drained, and all of which recovered. These cases are not included in the above list.

There were thirty-two cases of perforating appendicitis. Of these fifteen were drained and of four these had pelvic drains. Eleven had local drainage (tube and gauze) only, and nine of these through special stabs.

There were two deaths. Of the seventeen undrained cases one died from sepsis. A pelvic abscess formed and while I was waiting for it to rise out of the pelvis and become more readily accessible, it ruptured into the general peritoneum and killed my patient. One of the fifteen drained cases died from sepsis, progressive and promptly fatal.

There were forty gangrenous appendices, twenty-nine of which were drained. Four of these had pelvic drainage, and twenty-eight of the twenty-nine had drains for purley local purpose, in three cases combined, of course, with the pelvic drain.

There were three deaths in the forty cases. All were drained, but none had pelvic drain-

age. One died of obstruction, one of rapidly progressive sepsis, and the third a ruptured pelvic abscess which formed after the patient had apparently gotten past the danger period.

We have then a total of seven deaths in 224 appendix cases.

Two deaths out of seven from waiting for the maturation of pelvic abscesses doesn't encourage me to wait for this localizing process to strengthen its adhesive bonds. Both of these deaths occurred early in the series and I have acted promptly whenever a local accumulation could be detected.

To recapitulate briefly:

Pelvic infections: 60 closed cases, no deaths; 5 packed cases, two deaths; 1 sepsis, 1 sepsis and obstruction.

Tubal gestation: 2 closed cases, no deaths; 1 packed case, no death.

Suppurating appendices: 134 undrained cases, 1 death (thyroid intoxication); 18 drained cases, one death, sepsis.

Perforating appendices: 17 undrained cases, one death, sepsis; 15 drained cases, 1 death, sepsis.

Gangrenous appendices: 11 undrained cases, no deaths; 29 drained cases, 3 deaths; 1 obstruction, 2 sepsis.

THE X-RAY AN AID TO THE SURGEON— ILLUSTRATIVE CASES.*

By C. P. Fox, M. D.,

Greeneville.

The thought which inspired this paper had its origin in the oft-repeated criticism and deprecation of the value of the x-ray in diagnosis, which I have heard expressed by many surgeons in our larger clinics. Although it is evident that this criticism is becoming less frequent and that the value of the x-ray is becoming more appreciated with the improving technique of the roentgenologist, there seems to me, yet, to be a lack of appreciation of the real value of the x-ray in surgical diagnosis. In fact, I have found it so essential and of such inestimable value, in such a large

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

number of cases, that I now feel that I would be groping in the darkness in a large percentage of my surgical cases if I could not avail myself of its benefits.

In my judgment, the chief reason for discredit of the x-ray, by many surgeons, is their failure to cultivate a closer relation with the roentgenologist. The solution of the difficulty would probably be best solved if each surgeon would own his own x-ray outfit, employ a competent operator, and spend a good part of his time in the x-ray laboratory with his roentgenologist. There he would learn, for himself, interpretation, and with his more intimate knowledge of the clinical evidence and physical signs, could direct his examination as might be indicated by the clinical evidence. Position and serial examination have much to do with the results obtained in x-ray examinations.

During the past year I have x-rayed an increasingly larger percent of my surgical cases and, as my knowledge of interpretation has grown with experience and study, I have been able to do better and more accurate surgery, and in not a few instances have been saved from grievous error through the knowledge gained through careful and intelligent roentgenology. To the man who does a large amount of surgery of the abdomen, it is not necessary for me to emphasize the frequency with which he meets with surprises and how fallible are all his means of diagnosis, nor the frequency with which he invokes the help of the clinician and seeks to place the responsibility of error on his shoulders. It is surprising, too, how often he has failed to avail himself of the most important instrument of diagnosis—the x-ray—and if, perchance he has, the very slight importance he attaches to its findings, chiefly because he has left the interpretation and entire procedure of x-ray examination to the roentgenologist.

It would be beyond the scope of this short paper to discuss in detail the many fields of surgery in which the x-ray may be of the greatest value and the chief instrument of diagnosis. It would be impossible for me to report more than a very few of the great number of cases x-rayed and operated on during the past year in which evidence furnished

by the x-ray examination was of the greatest value to me. We now x-ray practically all of our bone, chest, abdominal and genito-urinary cases, who are not too acutely ill and in which the diagnosis is not so evident that the x-ray would be of no value. I am sure that my x-ray operator, who also assists me in the operating room, will bear me out in the statement that less than 10 per cent of cases operated on fail to show the lesion as indicated in the radiogram. I do not mean to say that we have not often found additional pathology, but to say that the x-ray has often led us to a lesion which we would otherwise, most likely, have overlooked. It has enabled us to place our incisions more correctly and upon the whole to employ a more accurate and better technique. Our operations have been more frequently controlled by the accuracy of exploration. We have been able more frequently to approach our patients with the confidence born of knowledge, in advising operation.

I wish to report a few illustrative cases, and will present, with these reports, a few pictures.

Case 7.—Mrs. C. W. W., age 47, married, no children, menopause at 45. No history of pelvic disease. For 20 years has suffered with poor digestion, gas in stomach, and constipation. Has suffered intermittently with papular skin eruption, occurring usually on hands, face and feet. Eruption was usually characterized by some itching. This eruption seemed often to be provoked by protein diet. Gastric analysis, made at intervals more or less frequently, has always shown an absence of free HCl. Symptoms were somewhat relieved by HCl after meals. The patient had consulted some of the best known gastroenterologists in America, whose diagnosis, as far as I could determine, was achylia gastrica, probably due to neurosis. For the past two years she has had attacks at frequent intervals characterized by chilly sensations followed by temperature, vomiting and epigastric discomfort. These attacks would last only a few days, after which she would recover her normal health. The patient was admitted to the Greeneville Hospital, September 12, 1919, suffering with nausea, frequent vomiting, some epigastric tenderness. Temperature

101 2-5 and pulse 110. There was marked tenderness over the gall bladder region, with dull pain under the right scapula. The upper right rectus was tense, the skin sallow and cachectic looking, but no jaundice, and no colic suggestive of gall stone. The urine contained no bile. Blood count showed 16,000 leucocytes and 85 per cent polys.

X-ray examination showed stomach and colon filled normally with barium. A very definite shadow was seen in the gall bladder region, which suggested gall stone. Three pictures were made at intervals and each showed this shadow which somewhat resembled a button. An operation was advised and agreed to. An incision was made in the outer margin of the right rectus, beginning at the costal margin. Dense and firm adhesions were encountered in opening the peritoneum, and the colon was separated from the under surface of the liver with great difficulty. On reaching the gall bladder region no gall bladder could be felt or seen. After considerable effort to find the gall bladder, without success, the fingers of the left hand were passed over the pylorus and the gastro-hepatic ligament made taut, and adhesions along its outer margin were carefully separated until the junction of the cystic duct with the common duct was found. Continuing the dissection along this duct, a hard spherical body was found which proved to be a stone in the ampulla. The gall bladder seemed to be literally imbedded in the liver. By careful dissection we were ultimately able to lift it out of its bed. The cystic duct which was almost completely stenosed, as the specimen which I have here will show, was tied off and a cholecystectomy was done. The gall bladder was filled with pus, but contained no bile. As there was evidence of a recent acute infection, the wound was drained with gauze and rubber tissue and the patient made an uneventful recovery.

I recently had the pleasure of a visit from this patient and she tells me that she has never had another attack of vomiting and fever, and that her health is now quite satisfactory. This case is reported on account of the long period of unexplained achylia gastrica, and because of the excellent shadow of the gall stone in the radiogram.

Case 2.—Mrs. W. F., age 45, married and mother of four children. For twenty years patient has had, at frequent intervals, attacks of pain in the left lumbar region radiating toward the bladder. The pain has often been of such severity that an opiate was necessary to relieve it. This pain would recur at intervals as frequent as every two weeks at first, but during recent years the attacks have occurred at less frequent intervals and the pain has been less severe. But for some time there has been, almost constantly, a feeling of discomfort or dull pain in the region of the left kidney. Sometimes, following an attack of acute pain, there would be a free flow of cloudy urine. For some time, the patient had complained of headache, was more or less constant. Physical examination. —The patient was a thin, rather cachectic-looking woman with a dry, scaly pigmented skin, prematurely aged. The heart was definitely enlarged with accentuation of second sound, no murmur. There was marked tenderness over the region of the left kidney, which could be definitely palpated, but there was no definite increase in size. Patient complained of dyspnoea and vertigo on exercise. Blood pressure, 170 mg. Examination of urine: Albumen positive, pus positive, and epithelial and granular casts present. Cystoscopic examination showed a normal bladder, except about the orifice of the left ureter there was a well defined inflammatory zone, and the orifice presented an elongated slit-like appearance. It could not be seen to functionate. A radiographic catheter was introduced, but met an obstruction about 3 cm. beyond the bladder. The right ureter was catheterized and the catheter passed readily up to the kidney. The cystoscope was removed and the bladder and ureter radiographed. In the plate, the right catheter can be seen passing up to the kidney. In removing the cystoscope, the catheter slipped out of the ureter and can be seen coiled up in the bladder. In the left ureter, near the bladder, a shadow is seen which we believed was a stone obstructing the ureter. In order to demonstrate beyond question the presence and location of the stone, we again cystoscoped the patient, introducing the catheter up to the obstruction and then radiographed

the bladder with the cystoscope in position. Being unable to pass beyond the stone by this method of catheterization, and hence unable to determine the function of the left kidney, I decided to try the Kelly method, and with a small catheter guided by a stylette I succeeded in passing by the stone and was thus able to determine the function of the left kidney. After determining the function of the kidney and the location of the stone, I advised an ureterotomy, to which the patient readily agreed. Having determined definitely the location of the stone, I decided to use the median abdominal incision, first suggested by Judd. In 1913 volume of the Mayo Clinics, Judd reported three cases operated on by this incision, and describes the operation as follows:

"The patient is placed in a moderate Trendelenburg position. A median supra-pubic incision is made from the symphysis to the umbilicus, extending through the fascia down to the peritoneum. The peritoneum was not opened, but was brushed back from the fundus of the bladder in the usual way. As soon as the peritoneum had been reflected from the bladder for a little distance, the right side of the bladder was retracted toward the middle line and firmly held. After a very little dissection through the fat toward the base of the bladder, the stone could be readily felt. Before manipulating the stone, the ureter was dissected free for a couple of inches and a pair of tacking forceps were clasped across the ureter. The stone was then grasped between the fingers and removed through a longitudinal incision. No attempt was made to suture the ureter. A rubber tissue drain was inserted, and removed on the fifth day. There was little, if any, leaking of urine, and the patient made a satisfactory recovery."

I have modified the Judd technique as follows: The bladder was first distended with water, thus lifting the peritoneum and rendering it easier to follow the outline of the bladder in separating the perivesical fascia. When the stone in the ureter was located and held firmly between the index finger and thumb of the left hand, the bladder was emptied and allowed to collapse. Then the ureter could be brought much nearer the surface

of the wound, where it was incised and the stone removed. The wound in the ureter was then sutured with No. 0 catgut, and the small rubber tissue drain was then introduced down to the line of suture in the ureter. The wound was closed by a line of catgut in the recti sheaths, and the skin with silk worm gut. There was at no time any urinary leak. The operation was done under gas-oxygen anaesthesia, and the period of anaesthesia was twenty-two minutes. There was no nausea and practically no post operative pain. The patient made an uneventful recovery.

The case is reported to emphasize the importance of a careful x-ray study in such cases to determine the exact location of the stone, thus shortening the time of anaesthesia in cases complicated by nephritis. Also, to emphasize the advantage of the median incision for stones in the lower ureter. In a recent letter Dr. Judd informs me that he has sutured the ureter in a number of cases, with very satisfactory results.

I might extend this report of cases in which we have found the x-ray a most important—in fact, indispensable—instrument of diagnosis, to many other cases which we have x-rayed and operated on, but the cases reported I believe serve to emphasize the value, since they are the type of cases in which error of diagnosis would be frequently made but for the x-ray. They are the cases, also, in which the x-ray pointed the way to accurate operative technique.

It is becoming more and more evident to me that the surgeon who discredits the x-ray is the surgeon who spends no time in radiographic interpretation; who does not go to the x-ray laboratory, with his patient, and direct the examination; who refers his patient to the roentgenologist, who is neither familiar with the clinical history nor physical examination of the patient, and thus has no guide to direct him and no aid to interpretation. A radiogram studied apart from the patient is practically valueless. The roentgenologist needs the guidance and help of the surgeon, as much as the surgeon needs the skill of the roentgenologist. I believe that every surgeon should have his own laboratory, and while he should have the help of skilled operators, he should be available at

all times to direct and assist the operator in his examinations and interpretations.

I do not wish to be understood, however, to stress the importance of the x-ray to the exclusion of other means of diagnosis. On the contrary, we recognize the value and importance of thorough history taking as well as of physical examination. The eye, ear and touch should be thoroughly educated. Clinical and microscopical examination in a well equipped laboratory should be available to every surgeon, and he should learn to interpret the findings of each and to be able to correlate these if he hopes to keep abreast with the progress of modern medicine and to serve his patients conscientiously.

Although we have reached the day of specializing, we have also reached the day when every specialist must have that broad knowledge of medicine which will enable him to place the proper estimate on the findings of the modern laboratories, as well as to interpret symptomatology. There is no such thing as being a successful specialist without the fundamental knowledge of disease which means a broader and better medical education than has been afforded in the past.

With more careful study of our case and with all the available instruments of precision in diagnosis there will be fewer exploratory operations, better operative technique, less damage to the patient, more honor to the surgeon, greater glory to the profession, and upon the whole a blessing to humanity, and a brighter hope of future reward to the doctor.

DISCUSSION.

Dr. William T. Black, Memphis: I wish to speak in reference to the picture just exhibited by Dr. Fox, where gall stones were found to be present by means of the x-ray. The x-ray findings are so often negative, where we have gall stones present, that at times we wonder whether it is advisable to have the patient to spend the price of a picture for this supposed trouble. I believe there is something like 6 or 8 per cent only of gall stones that will cast a shadow, the picture depending upon the constituent elements of the gall stones. It should always be explained to the patient before being taken to a roentgenologist that the failure to find a stone has no significance, and that only a positive picture means anything at all. I believe it is considered a fact that any gall bladder which casts a

shadow is a pathological gall bladder; therefore a picture is of service even when we fail to find stones.

I wish to report the case of a little girl 12 years of age who was sent to me about six months ago by Dr. McReynolds of Strayhorn, Miss. She had had several attacks simulating gall stone colic. As I had never seen one so young afflicted with gall stones before, I decided to have a picture made. The picture revealed seven distinct stones, which were removed the following day, proving the correctness of the picture. These stones were very soft, nevertheless they cast a shadow. Several weeks before this little girl had a bad attack of influenza, and all of her illness dated from that time. I have had two or three other cases of gall stones since that time in adults. In each case I am sure influenza was the beginning of their trouble.

Dr. C. P. Fox (closing): I do not wish to be understood as saying that the surgeon should be an x-ray operator, but I do think that he should be acquainted with the methods of taking an exact picture. In the examination of his patient he should go with the patient to the x-ray man, and be there to see and examine the plates. Otherwise the x-ray operator may not know what you wish the x-ray to show, or what parts you particularly wish the picture to develop, and the x-ray man will not know why he is taking the pictures and what you are desiring to show. If you have a good, clear conception of what is the matter with your patient, pathologically, then you are much better able to do good surgery with the aid of the x-ray. I do not do x-ray work, and have never made a picture in my life, but I do know when I get correct plates. No matter what may be the skill of the x-ray man or the skill of the surgeon, if he does not go with his patient to the x-ray man, and does not give him a history of the case, then he does not know what he is looking for.

One of the reasons why I presented this paper is to show what may be gained, from a surgical standpoint, by the use of the x-ray. In this gall bladder case I did not know whether there was trouble there or not. This particular picture does show the stone, but the large majority of cases will not show the stone in the plate as this one did. But I do say that the x-ray is of inestimable value in the detection of gall bladder diseases. There are a good many indications in an x-ray examination that lead us to suspect gall bladder disease. We do not have to find the stone, for while, as I have been able to explain in this particular case, I did see the stone, and on operating found the stone and also found the gall bladder itself diseased. The x-ray is of great value in cases of this kind even where we do not see the stone. In 80 per cent—possibly 90 per cent—of my gall bladder cases I do not see the stone, as I did in this case, but still I know that gall stones are probably present, and the x-ray helps me to arrive at that diagnosis. It would be too lengthy a discussion for me to tell you how we

diagnose gall bladder diseases after the x-ray man has made the plates for us, and we have had opportunity to study them, but there are certain things that can be worked out that prove pretty conclusively a gall bladder condition, but do not show stone in the gall bladder.

I thank you for the discussion.

Editor's Note: There was other discussion of this paper, but stenographer's notes sent for correction have not been returned.

ARTERIAL HYPERTENSION.*

By R. L. Motley, M. D.,
Dyersburg.

A few short years ago the entire field of sphygmomanometry was covered by the cumbersome and delicate mercury manometer, which was found only in the university laboratories to demonstrate to a group of bored students the fact that the column of blood in the arteries of a dog behaved in the manner of all liquids governed by the physical laws of hydrostatics. Today the simplified anacroid clinical sphygmomanometer is used by a large number of practitioners almost as habitually as their thermometers, and has become a most valuable instrument of precision. By its routine use in diagnostic technique, many cases of arterial disease, renal disease, and other disorders are discovered which, without its use, would be put in the class of "neurotics," "hypochondriacs," "neurasthenics," and other such classifications applied to them as we are wont to apply when we do not know what is the matter with our patient. Systolic, diastolic, and pulse pressures have become very definite terms with a very definite meaning, and no general examination of a patient with a chronic complaint is complete without a record of these pressures. Cabot¹ said of the use of the sphygmomanometer that "for though one of the simplest, it is the most important of all medical tests." While sphygmomanometry can hardly be considered the most important test, it is certainly one of the most important tests.

While hypotension is occasionally met with, and has its own significance, by far the most frequent and important variation from normal of the arterial tension is arterial hypertension. No attempt shall be made here to discuss just what the lowest figure is that constitutes hypertension, for this discussion shall apply to pressures which are definitely high. It is also not my intention to discuss the relative significance of the systolic, diastolic and pulse pressures in this paper.

Our conception of the causes of hypertension is undergoing changes as more investigation is being carried on. Cabot¹ stated that there are two main causes of high blood pressure, arteriosclerosis and kidney trouble. This statement has been since called into question, as there are carefully studied cases occurring without the slightest evidence of either arterial or kidney damage. However, Klinkert² reports twenty-five cases of arterial hypertension which he studied, and all of whom had none of the usual evidences of kidney trouble, but all but two of whom had a high blood urea content, and fourteen of the twenty-five had an excessively high urea content. Álvarez³ considers hypertension in younger persons as one sign of an hereditary defective cardiovascular renal system, when there is no very definite pathologic cause evident. Warfield⁴ divides hypertension cases into three groups—i. e., chronic interstitial nephritis, hereditary or cerebral type, and the arteriosclerotic type. Cummings⁵ refers to the frequency with which hypertension occurs in connection with the menopause. Riesman,⁶ in discussing what he terms an "essential" or primary hypertension frequently found in women in the absence of definite kidney and arterial lesions, mentions the following facts: The women are usually stout, overweight and undersize, have borne many children, the greater number fall between 50 and 60 years, practically all are constipated, and worry and the menopause are prominent factors. Moschowitz,⁷ without trying to explain any definite mechanism of hypertension, has described the physical and psychic make-up of the type of person most frequently developing hypertension in the following words: "The patients are overweight and sometimes even obese. The neck is short, the

*Read at annual meeting of West Tennessee Medical and Surgical Association at Dyersburg, May, 1920.

muscles are soft, their bodily movements are sluggish, their carriage and walk are ungraceful and they lack the spring and elan of the former athlete. Physically, these people are tense; they pursue their vocation with tremendous seriousness and worry over trivialities. Phlegm and hypertension are, in my experience, antagonistic. Furthermore, these individuals have narrow intellectual horizons. Their interest in anything outside of their business is desultory. They have no hobbies." While this is an excellent description of the usual candidate for hypertension, it is not infrequent that other types are seen with excessively high tension. We have all seen the small slender woman and the sparely built man with high arterial tension.

Breed⁸ calls attention to the role of amino acids and intestinal bacteria in the etiology of the condition, and states that his series of cases responded to a carbohydrate diet by a lowered blood pressure and lessening of the products of putrefaction.

It can be seen from a study of the literature of the subject that while many occasional causes for hypertension are ascribed, there is a fairly uniform agreement that arterial hypertension is in many cases a compensatory effort to help an inefficient circulation. Further, it seems that there is a fairly universal agreement that the inefficiency of the circulation is due to a few main causes. These causes are usually the result of long continued toxic disturbances of any nature, infections, and metabolic disorders. The consensus of authoritative opinion would indicate that chronic nephritis and arteriosclerosis are the most commonly found causes or associated conditions. While this is true, there is the large number of hypertensive cases which fall in the group nearly as large as the arterial-nephritic group, and which includes the diabetic case, the thyrotoxic, the case from unstable vasomotor system, focal infections, and the case due to mental stresses. And also there is the group of cases in which the most exhaustive examinations fail to reveal a cause.

Among the causative agents of hypertension to be searched for first, of course, are arterial damage and kidney changes. In this connection, it is not sufficient to satisfy one-

self that arteriosclerosis is present. A routine Wassermann test should be made on every case, as it is unnecessary to mention the affinity of syphilis for the cardiovascular system. A most careful and exhaustive search should be made for foci of chronic pyogenic infection, and where there is dentistry of any extent present in a subject's mouth, radiography of the teeth should be a routine. The nose, throat and accessory sinuses should be carefully examined by a specialist for chronic infection. In women, an examination of the pelvis is indicated for the discovery of any possible sources of chronic infection in the pelvic organs.

While the average kidney in a fairly advanced state of chronic degeneration of any of its elements will show some evidence of it in the urine, a repeated negative urine as regards albumen and casts is no final evidence that the kidneys are not damaged. This point should be emphasized. While the ordinary routine urinalysis is indispensable and should never be omitted in any examination for whatever purpose, the fact that it is negative should not be taken as final evidence that kidney damage is not present. A chemical analysis of the blood may show a high degree of retention of the waste products of metabolism such as urea, uric acid and creatinin, when the urine is flatly negative by all tests. The quantitative analysis of the blood has been simplified by modern colorimetric methods and is now easily applicable to every day clinical problems. The phenolsulphonaphthalein functional test, which is absurdly easy to perform and most valuable, should be made in every case. Even the simple procedure of estimating the specific gravity of the separate night and day urines will yield valuable information.

In both the arterial and kidney groups of cases, the mode of life and habits of the individual should be carefully studied. A history of past eating and drinking habits should be obtained, and not only the quantity of food, but the most favored articles should be ascertained. When a subject informs me that he was never any great hand to eat many things, but that he always has been "a dear lover of meat," I begin to get down to details. I usually find that red meat,

including a generous proportion of pork, has been eaten in large quantities three times a day for years, and that with it has gone the usual condiments such as spices, pepper, salt, etc., in abundance, and a large amount of coffee, and that in addition to that, constipation had become such a matter of course with him that he thought it was natural. The amount of purin bodies, urea, uric acid, and other nitrogenous waste products, which must be circulating in his system and which must be eliminated by his long suffering kidneys, can easily be imagined.

The mode of life that most easily predisposes an individual to arterial and kidney changes is one in which much mental work and anxiety, little physical exercise, and much rich food and drink are prominent. Particularly is this so when the individual takes little or no recreation or play. In certain occupations, industrial poisons, such as lead, arsenic, and aniline should be considered.

If the case is not one easily ascribed to the usual causes, a careful examination should be made for thyrotoxicosis. The absence of tremor, exophthalmos, tachycardia, etc., in marked degree should not cause one to lose sight of the possibility of hyperthyroidism until a careful study has been made of his reactions to graded amounts of physical work, and his reactions to injections of suprarenalin.

The diabetic cases of hypertension are rare and self-evident usually, and very little need be said on this subject. However, it is the routine urinalysis which usually discloses this cause. In every case of hypertension, a period of observation and repeated examination is necessary before any final conclusions are drawn.

As to the symptomatology of the hypertensive cases, it might be said that the symptoms are fairly constant and usually suggestive when related during the history taking. The symptoms are variable, but in the main consist of frequent headache, vertigo, ringing in the ears, disturbances of vision, increased nervous and mental irritability, failing memory, various aches and pains over the body, sometimes muscular cramps in the limbs, subjective sensations relative to the

heart which are frequently described as "loud pounding of the heart," particularly when lying down at night, precordial pains sometimes becoming severely anginoid in character, and increased worry over trifles. While this paper was being prepared, a case was referred to me for diagnosis by a physician in which treatment had been carried on for some period of time for neuralgia in the patient's chest by local applications, strapping, etc., and upon examination the subject proved to have a systolic pressure of 200 and a diastolic pressure of 110, which systolic pressure rose to the dizzy height of 240 after the performance of 300 foot pounds of work in 30 seconds. This subject was not yet thirty years old.

As it is not within the purpose or scope of this paper to discuss the treatment of hypertension in any detail, only a few points will be briefly mentioned. Drugs are almost valueless. Needless to say, the cause is to be first removed. However, even the removal of the cause will not always bring the desired relief, since the organic damage is frequently already done to the arteries and kidneys, and the changes cannot be removed. In these cases drugs to a certain extent will have to be relied upon for the relief of symptoms. The mainstay of the management of any case is proper regulation of the patient. Even after causative foci of infection, syphilitic infection, toxic causes, etc., have been discovered and removed, the patient's habits, diet, work, and recreation must be carefully regulated. A hypertensive case is essentially one of the "chronics" which sometimes come to be studied and worked with untiringly, not for a period of weeks or months, but for years. The problems presented by each case must be dealt with individually, and no formulated set of rules for management or treatment can be set forth. Drugs will have to be resorted to occasionally for the relief of urgent symptoms. Aside from the usual harmless drugs for the relief of headache, sodium nitrite is the most important drug, as it can be relied upon for the rapid although temporary reduction of pressure. Where true angina pectoris is an accompaniment of, or anginoid pains a symptom of hypertension, the nitrites should be exhibited. While po-

tassium iodid is much used in hypertension, its value is doubtful in all except the case where syphilis is a factor. In those cases concurrent with the menopause, some of the extracts of the glands of internal secretions may sometimes show benefit. When the pressure reaches dangerous heights, or when the subject is plethoric, free bleeding will frequently bring relief. Free but not drastic elimination is to be used judiciously in all cases. Electric treatment in the form of diathermy sometimes seems to be of benefit.

SUMMARY.

1. The routine use of the sphygmomanometer should be employed in the examination of every case presenting itself for diagnosis.

2. Arterial hypertension is a symptom, usually of damage to the cardiovascular renal system, with an underlying toxic or infectious cause. Not all cases necessarily fall into this category.

3. A careful study of the patient himself should be made in every case in addition to a somatic study of his condition.

4. Routine Wassermann tests and routine blood analysis should be made on every case of hypertension, as well as carefully performed renal functional tests.

5. Long continued supervision and regulation of the patient's mode of life after removal of cause constitutes the basis of treatment.

¹Cabot, R. O.: *A Layman's Handbook of Medicine*. Boston, 1916; p. 172.

²Klinkert, D. D.: *Nederlandsch Tijdschrift v. Geneeskunde*, 2, No. 8; p. 554.

³Alvarez, W. C.: *Cal. State Jour. Med.* 17, No. 10; p. 367.

⁴Warfield, L. M.: *Am. Jour. Med. Sc.*, CLIV, No. 3; p. 414.

⁵Cummings, R.: *Cal. State Jour. Med.*, 17, No. 10; p. 373.

⁶Riesman, D.: *Jour. A. M. A.*, 73, No. 5; p. 330.

⁷Moschowitz, E.: *Am. Jour. Med. Sc.*, 158, p. 668; November, 1919. (Quoted in editorial, *Jour. A. M. A.*, 73, No. 25, p. 1886.)

⁸Breed, L. M.: *Cal. State Jour. of Med.*, 17, No. 10; p. 371.

SOME UNUSUAL MANIFESTATIONS OF MALARIA, WITH REPORT OF CASES.*

By E. O. Jenkins, M. D.,
Clifty.

I offer no apology in presenting a paper on any phase of this time-honored subject, but on the other hand I feel that so long as people are subject to the ravages of so treacherous a malady, just so long should this subject be of paramount importance in the minds of medical men. When I speak of malaria as a treacherous disease, I do so advisedly, because it is this very feature that has furnished me the incentive to write this paper.

Public health officials and sanitarians have done much, and are still doing much, to eradicate the disease and perhaps the day will come when every mosquito and every parasite will be driven as a mighty cloud of "miasma" forever from our shores. But that day is not yet. One point I want to here emphasize by way of parenthesis: We as medical men, and especially the medical men in rural communities, can do much toward this happy end by being absolutely certain that every case of malaria that comes under our observation is permanently cured before dismissed, thereby lessening the number of carriers. Nowadays we can be certain of a permanent cure, because in the first place we know that we have a specific, and in the second place, the examination of the blood at frequent intervals will show whether or not the parasites are present. Therefore every case of malaria should be kept under observation and have blood smears examined for a period of at least six months after all symptoms have disappeared.

If this was done there would be a far less number of cases presenting unusual manifestations. Indeed, a great many cases that we might consider unusual are not unusual at all, but are simply due to the havoc being wrought in the blood by the parasites, as for

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

example, anemia, neuralgia, enlargement of liver and spleen, etc. Anders, in his practice, describes all such conditions under the general head of "malarial cachexia."

It is not usually very difficult to make a diagnosis of the more simple types of malaria, or the conditions that are brought about by it, provided such conditions are of a chronic nature. For instance, if we are called upon to treat a case and find an enlarged liver and spleen, we know to rule out malaria by a proper blood examination. The same is true if we are treating anemia, or, in fact, any of the other of that long train of symptoms and conditions that would come under the head of "malarial cachexia." It is, therefore, not my purpose to burden you with a detailed description of any condition where there is a symptom to give us our "cue" and lead us to suspect malaria.

Aside from all these, however, there are a large number of cases, the symptoms of which lead us far afield in our search for a diagnosis, and unless we are in the habit of having routine blood examination, we are liable to mistake a case of malaria, which could be easily cured, for some other malady. We are not so liable to make an erroneous diagnosis if the symptoms of the case in hand point to some chronic disease, for then we are compelled to bring to our aid every means of diagnosis, but frequently malaria will simulate some other acute disease, with symptoms so plainly indicative of that particular acute disease that we are certain of our diagnosis, never once thinking of malaria. Such cases are due to the fact that malarial parasites have what I am pleased to term cumulative, selective action on certain organs and tissues of the body. This selective action usually manifests itself by simulating some of the acute diseases of the following systems: Digestive, respiratory, brain and nervous system, genito-urinary,

The Digestive System.—The best example of malaria as it relates in a special way to the digestive system is the algid form, or congestive chill, with which our fathers and grandfathers were so familiar and were wont to discuss in their medical meetings. Of course this type is rare outside of highly malarial districts, but it can and does occur in

any place where the more simple types of malaria prevail. The parasites here have a selective action and center themselves in the gastro-intestinal mucosa, sometimes forming emboli by their unusual numbers in the lumen of the blood vessels. The congestive chill may strike, unusherred, like a bolt from a clear sky, and the symptoms, being so intensely intestinal, may lead us to make a diagnosis of some gastro-intestinal disorder, such as cholera morbus, and never to think of malaria. I am persuaded that a large number of whose deaths you read in the daily papers as having occurred from acute indigestion really met their untimely end by the route of the congestive chill. I am not, however, trying to palm this type off on any of you, whose practice is in highly malarial districts, as an unusual manifestation of the disease, but those of us who practice where the simpler types prevail are apt to meet with an occasional case, and to us then it is an unusual manifestation, and is liable to be mistaken for something else.

A case in point: A male patient, age 29, had always been robust and healthy. Had suffered for three or four days previous with headache and pain in his muscles and joints, slight soreness in the abdomen. Bowels were constipated and no appetite. For these symptoms he had, on his own initiative, taken one-half ounce of castor oil, which somewhat relieved him. The afternoon of the following day I was called hurriedly to see him. I found him prostrated, with rather severe pain in his abdomen, purging and vomiting. Temperature by mouth 101, while the surface of the body felt cold and clammy. After a few hours treatment, directed mainly to relieve his supposed cholera morbus, the symptoms gradually abated, only to return with greater violence the next day. Taking my "cue" from the periodicity, I suspected malaria, and at once secured a blood smear and began the intramuscular administration of quinine. The symptoms again gradually subsided and, under continuous treatment, the patient made an uninterrupted recovery. The blood report came back negative, but with the suggestion, however, that it might be the aestivo-antumnal type, of which I have no doubt. This could have been a case easily overlooked

and allowed to die, inasmuch as it simulated one of many acute gastro-intestinal disorders and the fact that the blood examination was negative.

Respiratory System.—What has been said with reference to the selective action of the parasites on the gastro-intestinal mucosa may also be said with equal emphasis as to the same selective action in the bronchi and lungs. This type may so simulate lobar pneumonia, in the stage of congestion, as to be indistinguishable. Being ushered in with a chill, the physical signs rapidly follow, with pain, perhaps dyspnoea, cough and even blood-stained sputum. A physician of large experience and reputation once, while extolling the virtues of quinine in the treatment of pneumonia, related to me how, on two different occasions, he had aborted pneumonia by the administrations of 100 grains of quinine per rectum. I, not being his equal, either in experience or reputation, could not take issue with him; but I believe then as now that that doctor accidentally cure two cases of malaria.

Report of Case.—Patient, female, age 12. About nine o'clock in the morning was seized with a chill, which was soon followed by a temperature of 103, a short, grunty, restrained cough, a pain in the side and rapid respiration. There were no rales and, in fact, no physical signs. Yet I made a tentative diagnosis of pneumonia, fully expecting a full development. The next morning, however, the symptoms had all disappeared, leaving me very much in doubt as to the cause of the trouble. The second day the symptoms returned as before, and it was then I suspected malaria, which a blood examination confirmed.

Brain and Nervous System.—Malaria as it especially affects the brain is usually described in the text books as the "comatose form." It is due to the excessive accumulation of the parasites in the cerebral blood vessels. It may or may not be ushered in with a chill. The fever rises rapidly and is high, 104 to 105, accompanied by delirium or coma. If the patient does not die in the first paroxysm, the delirium or coma may gradually disappear, after the fever has abated, only to recur with the next paroxysm. The parasites may be present in such large numbers

as to form complete thrombi, with death frequently ensuing as an inevitable result. This type, like the congestive chill, can and does occur in any locality where the simpler types prevail, and it may be a fatal mistake to fail to make a diagnosis early.

Report of Case.—Patient, male, age 83. After a few days indisposition had a rise of temperature of 102 degrees. After a calomel purge the temperature gradually subsided, although it did not return to normal. The second day thereafter the chill supervened, which was followed by a temperature of 104, accompanied by delirium, which gradually deepened into coma. In this case, considering the patient's age, and after carefully considering all the clinical symptoms, as well as an examination of the urine, oedema of the brain was uppermost in mind; but in order to rule out malaria, a blood smear was taken, which proved positive. Quinine was administered intramuscularly. The fever gradually abated, but the coma persisted several days. With the patient's head enveloped in an ice cap the quinine was cautiously continued. The patient made a complete recovery. This case of malaria could have been overlooked and treated as one of oedema of the brain, had not the blood smear been taken in order to be sure that malaria was not a factor.

Genito-Urinary System.—It is not my purpose to discuss under this heading the malignant type of malaria which is characterized by what is termed "malarial haematuria." There are a good many cases which may resemble other diseases of the genito-urinary organs which I shall leave without discussion. I am not unmindful of nephritis, which might have its origin in a malarial infection; but as this is more of a chronic nature, we would have more time to make thorough tests of every kind, one of which should always be an examination of the blood. I will therefore content myself with the report of one case that will illustrate the insidiousness of malaria as it affects the genito-urinary apparatus.

Report of Case.—Patient, female, age 36, was placed in a hospital and referred to a surgeon for the removal of the uterus for intramural fibroids. The patient made an un-

interrupted recovery, and after remaining in the hospital three weeks, she was sent home. I had been the family physician for three years and had never treated this patient for anything that even remotely resembled malaria. About four weeks after the operation she began to complain of frequent, painful micturition. This condition continued to grow worse day by day. I came to the conclusion that this patient must have gotten an infected bladder while in the hospital, and that this was a recurrence. I got in communication with the surgeon in whose care she had been, and he informed me that the patient had had no such symptoms while in the hospital. No treatment of the bladder gave one iota of relief. The microscopic findings in the urine were negative. The patient's temperature ranged from 99 in the morning to 102 in the afternoon. I was about to conclude definitely that this was one of the neurones affecting the bladder, when I decided to try a blood smear for malaria. I sent the blood to a bacteriologist and gave the patient quinine. By the time the report came back, positive, my patient's symptoms were relieved.

CONCLUSIONS.

First. That the parasites of malaria have a cumulative, selective action in the blood vessels of certain organs and tissues of the body.

Second. That such selective action causes malaria to sometimes be masked with positive clinical symptoms of other acute diseases.

Third. That no case of malaria should be lost from observation until repeated examinations, over a sufficient length of time, show that the parasites are permanently absent from the blood.

DISCUSSION.

Dr. William Sheddan, Columbia: In a malarial locality, such as described by the last speaker and the writer, my observation is, after forty-two years experience in the practice of medicine, that out of a number of cases which are diagnosed as malaria, say fifteen or twenty; that there will be a large number that are not malaria at all. I happen to live in a section of country where malarial fever is a comparative rarity at this time. I have been in Maury County forty-two years; when I moved there in 1878 malaria was one of the most prevalent diseases of the country, but for the last ten years I do not suppose that I have seen on an average

of five cases of malarial fever a year. My observation is that many of the cases that are diagnosed as malarial at the start turn out to be something else. It is nothing unusual for a case to come to you and it may be diagnosed as malaria when, in fact, it may turn out to be active tuberculosis. I see cases of that sort almost daily. You will see cases diagnosed as malaria where the patient has had no malaria during the previous year or for ten years past, or perhaps in his lifetime. They will come to the physician with an irregular pulse and perhaps a high temperature and a diagnosis of malaria will be immediately made. I have seen such cases diagnosed as malaria more times than I can remember almost when active and incipient tuberculosis was the trouble. I have seen a diagnosis of malaria made quite a few times when syphilis was at the bottom of the trouble. Now, we do still have malaria, there is no doubt of that, where you live in a malarial section, but I just wished to emphasize the point that not every case that was diagnosed as malaria was malaria. We have a type of typhoid that was very common all over this country twenty-five years ago, and almost every case was diagnosed as malaria, and large doses of quinine given and had no more effect on it than if it was water. Twenty-five years ago that was not an unusual occurrence. In those cases, I believe it did a positive harm. Now, I say that my experience has been that malaria has often been the diagnosis when other pathologicals were present and no malaria, and my observation that a great many cases—in fact, I see more cases diagnosed as malaria that are something else than are really malaria. (Applause.)

Dr. E. O. Jenkins (closing): Now, I only wish to emphasize the point that in chronic cases of course we have the time to make a blood examination and to make the Wassermann test, but in acute conditions we have got to act at once and we are almost obliged to rely on a clinical diagnosis and make a diagnosis quickly.

Editor's Note: There was other discussion of this paper, but stenographer's notes sent for correction have not been returned.

NASAL REFLEX ASTHMA.*

By R. W. Hooker, M. D.,
Memphis.

It is remarkable how many gasping, asthmatic conditions can be referred to the nose. To fully understand this most exasperating disturbance let us for a moment recall the

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gross anatomy and, especially, the physiology and nerve supply of the nasal chambers. In the normal nose we have a double pyramidal cavity with bases backward and downward which should be equally divided by a straight up and down wall extending gracefully from bridge to floor with supporting and basal flanges, known as the septum. These two triangular spaces are further subdivided by the lower and middle turbinate bodies, leaving two chambers not unlike subterranean tunnels driven straight backward at different levels in a mine, the upper one being for the intake and the lower for the outflow of air. The middle turbinals so fill the upper spaces that they practically occlude any part of respiration, their function being mere drainage conduits for the ethmoids and sinuses; hence do not enter into this discussion.

The functions of the middle turbinates are to moisten, warm and filter the air so that when it reaches the lungs, it may not injure these vital organs whose greater function is to absorb oxygen and cast off carbon dioxide and cannot be occupied in mere preparatory processes. It is very important, then, that the heating and humidifying apparatus of the nose should be in good physiological condition.

Any obstructive deformity of the lower portion of the septum, such as spurs and ridges, may interfere with the expiratory current. Any deviation of the septum from the median line will almost surely interfere with the expiratory current. Any deviation of the septum from the median line will almost surely interfere with the inspiratory current, partially, if not wholly, occluding the one chamber at the expense of the other turbinate by putting it on double duty. Unlike muscular tissue overwork does not seem to build up the resistance of mucous membrane, but stimulates excessive secretion and the development of polypoid growth.

The sensory nerve supply of the middle turbinates is derived from the ethmoidalis, while the mucous membrane and erectile tissues are controlled by vaso-motor branches. This commingling of nerve filaments transmits its sensations up the efferent lines to the medulla and sends back over the afferent

vagus the contractile impulse to the very bronchioles of the lungs, superinducing violent paroxysms of the muscular layers about these little tubes.

On breathing, the cold air strikes the middle turbinates full blast and is deflected downward and backward over their entire surface, and, if they are the least polypoid, there is a recoil of the nervous mechanism which is transmitted over the route just indicated, causing spasmodic contractions of the bronchioles with resultant dyspnoea. Any patient with a polypoid middle turbinate is likely to have at some time asthmatic disturbance.

Relief can come only through operative procedure, for treatment is not even palliative. In case of a thickened or deviated septum, the submucous resection is always indicated. Let turbinectomy be the last resort; for when the septum is straightened, nature tends toward equalization of the middle turbinates again, and thus their functions are restored. Should turbinectomy be resorted to, remove only the polypoid portion. Even then it might be well to try cautery, not deeply, but very gently, just enough to insure contraction without a deep scar. Leprince has a most interesting article in the December number of the *Annals of Otology, Rhinology and Laryngology* in which he makes the statement that "a slight cauterization of the inferior turbinal will cure an enteritis, a neurasthenia, a cardiopathic condition, an asthma, and many bladder troubles."

In conclusion, I wish to report a case:

Mr. J. L. R., aged 40, a ginner by trade, has been accustomed for years to have ever-increasing, periodic asthmatic paroxysms until it came to be practically a monthly occurrence. His family physician, finally despairing of relief through ordinary measures, had his wife call me on one of these occasions, August 5, 1916, in the belief that some nasal disturbance was the cause. I found a very ugly deviation of the septum, completely jamming one middle turbinate against the opposite wall, while the other one was very large and polypoid. After the usual exacerbation had subsided, I resected his septum and removed the polypoid portion of the big turbinate, inasmuch as it was unusually large. I saw him more than three years later, and

he declared that he had never had a return of the asthma, nor even the slightest discomfort of the nose in the ginning season or in the coldest weather.

EXTRA-GENITAL CHANCRES.*

By Herman Spitz, M. D.,
Nashville.

Extra-genital infection with syphilis has been known to occur since the close of the fifteenth century. At this time it was shown that the nurse could infect the suckling. Since that time various means of transmission have been established and numerous articles concerning this subject are found in the literature.¹

It is impossible to give the exact number of extra-genital chancres. Nearly every physician has seen at least one, some many, and undoubtedly the majority are never reported in the literature. For the same reason, the proportion of genital and extra-genital chancres cannot be stated. That extra-genital infection with lues is common and probably becoming more so, as is attested by the literature of the subject. (The remarks in this paper are limited to the extra-genital infection acquired innocently, and not to the infection acquired as the result of unnatural sexual intercourse.)

Bulkley, up to 1892, collected 12,000 cases. Muncheimer collected 1,207 cases from 1892 to 1896. Fournier reported 1,124 cases. Scheur has written a very comprehensive monograph on the subject and reports a series of 5,679 cases collected from the literature from 1892 to 1909. He added all the previously reported cases and had a total of 20,000 cases, which he has analyzed according to anatomical location, mode of transmission, etc.

It may be roughly estimated that from 5 per cent to 10 per cent of all chancres are extra-genital. At best these figures are only approximately correct. For the reason stat-

ed, unreported cases and unreliability of patients' statements, group statistics improperly arrived at, unrecognized cases, etc., the figures are necessarily incomplete.

However, in view of the fact that 20,000 cases of extra-genital chancres have been reported in the more recent literature, it becomes apparent that this mode of transmission of syphilis is common, much more so than we had believed. Consequently we must study this subject with a view of prevention. And in order to prevent we must know the cause, the means of transmission and other data. We know the cause. The *treponema pallidum* (*spirocheta pallida*) is accepted by all authorities as being the infecting organism. The means of transmission is not established in all cases.

The location of an extra-genital chancre gives us an excellent clue as to the means of transmission, and as a matter of course, the location of the chancres in the 20,000 cases analyzed by Scheur are known, and he has tabulated them as follows:

Group 1. Buccal Infection, 6,178 Cases, or 43.7%.

Lips	3,880	27.44 %
Tonsils	1,104	7.80 %
Mouth	824	5.82 %
Tongue	273	1.93 %
Gums	97	.68 %

Group 2. Minor Operations by Ignorant Persons, 33,187 Cases, or 22.54%.

Vaccination	2,144	15.16 %
Circumcision	753	4.32 %
Cupping	181	1.28 %
Tattooing	109	.77 %

Group 3. Nursing Syphilitic Children, Breast Draining, Etc., Breast and Nipples, 1,568 Cases, or 11.09%.

Group 4. Physicians, Midwives, Nurses, Etc.

Fingers and nails	897	6.34 %
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Group 5. Miscellaneous, 2,305 Cases, or 16.30%.

Ey lids	632
Nostrils and throat	423
Chin	252
Cheeks	220
Nose	172

Also on the trunk, lower extremities, forearm, forehead, temple, neck, ears and head.

We can readily draw certain logical conclusions from these figures. In group one we

*Read before the Middle Tennessee Medical Association and the Nashville Academy of Medicine.

see that approximately 28 per cent of all extra-genital chancres are on the lips. Kissing plays the largest role in this group, but the number transmitted as the result of using eating and drinking utensils recently used by a syphilitic are too great to pass without paying particular attention to this fact. The sterilization of all utensils, such as knives, forks, spoons, glasses and cups in public places cannot be stressed too strongly.

In group two vaccination is the predominating factor. Inasmuch as arm to arm vaccination is now a thing of the past, and all sources of vaccines are well controlled, we may safely assume that this means of transmission is practically obsolete. Circumcision still plays a part. However, a better technic is now replacing the old unscientific method employed by ignorant persons in the performance of this religious rite.

Group three, occurring in wet nurses, are found more frequently in those countries where wet nurses are used most. Happily, in this country, when it is necessary to use one, proper precautions are demanded, especially a Wassermann test, to determine the infection in both child and nurse.

We are especially interested in group four. About 6½ per cent of all extra-genital chancres are on the hands (fingers and thumbs) of physicians, nurses, midwives, dentists and others who minister to the sick. In the last few years 168 cases have been reported among physicians alone. So common has this become that it is now classified as an occupational disease of physicians. I add my word of caution to that of many others. Physicians and others who attend the sick cannot be too cautious in guarding their own health, and especially their hands.

The method of transmission is known and is of great importance at this time in aiding the public health authorities in their fight against venereal disease.

In group one we have, in order of frequency, kissing; use of eating and drinking utensils; instruments used by certain trades—e. g., glass blowers, musicians, chemists, etc.; smokers's articles; toothpicks; artificial feeding of children.

In group two the use of infected instruments by physicians, dentists and others.

In group three the careless handling of patients by physicians, dentists and others who attend the sick. We may also include the general care of syphilitics, especially the care of syphilitic children.

Group four, acquired through close family contact or association. Here such factors as personal contact, common use of toilet articles, medicines, towels, handling infected clothing and cloths, sleeping with a syphilitic, playing, etc., should be noted.

In group five the infection is transmitted by minor operations by non-medical men—e. g., barbers (shaving, cutting hair, picking at ingrowing hairs, pimples, boils, etc.); tattooing; puncturing earlobes; circumcision; cutting corns, etc.

Our health authorities, federal, state and local, are now devoting much of their time and resources to combating venereal disease. It is our duty to help in this crusade and throw into the fight all our energy and knowledge. The man or woman who contracts syphilis accidentally should also become a fighter in the ranks against venereal disease. Such an individual can only be of service, as we can only be of service by possessing the facts with which to work. A knowledge of the conditions as they exist in our own community and state is important.

The Council of National Defense places the number of syphilitics in Tennessee among the registered men in the first draft, but not called into service, at 8,700.²

The United States Public Health Service gives the following percentages of the cases of clinically obvious venereal diseases (chancre, gonorrhea, syphilis) at the various camps: From Knoxville, 9.33 per cent; from Nashville, 9.67 per cent; from Chattanooga, 10.48 per cent; from Memphis, 13.26 per cent. These percentages do not include clinically cured cases. Only those cases presenting manifest lesions—i. e., active cases—are included.³

Reports to the State Board of Health for the first seven months of venereal disease control in this state show 2,538 cases of gonorrhea, 1,570 cases of syphilis and 393 cases of chancre infection. Among the clinics in the state treating venereal disease in the same period, there were 477 cases of gonorrhea,

433 cases of syphilis and 66 cases of chancreoid infection.

Considering the large number of venereal diseases among the drafted and non-drafted registrants as shown by official reports from the Surgeon-General's office, and the large number of cases of venereal disease reported to the State Board of Health, we must realize that these diseases are present everywhere. No community is free. When we walk into a drug store for a glass of soda or into a restaurant for a meal, we may be the ones, or our wives or children be the ones, to eat or drink after a syphiliite. With such a large number of the population infected, it is only natural that each of you will come in direct contact with some of them. Many are doubtless under your care. Some come for other conditions and if you are not constantly on your guard, trouble will be your pay.

I herewith present a report of twenty-three cases of extra-genital infection that have come under my personal observation. The diagnosis was made by finding the specific organisms by dark field examination, by microscopical examination of the excised lesion, by the history, and by the Wassermann test. The majority were diagnosed by dark field examination alone.

1. Mrs. H., widow; lesion on lower lip. Seven weeks. Wassermann positive.

2. Mrs. D.; married; lesion lateral margin of tongue and right tonsil. Wassermann positive three weeks later.

3. Young man. Lesion on lower lip.

4. Young man. Lesion on lower lip.

5. Young man. Lesion on lower lip. Student.

6. Mrs. D.; young married woman. Lesion left tonsil. Wassermann positive.

7. Young man; hotel clerk. Lesion on left tonsil.

8. Infant. Lesion on left angle mouth.

9. Mother of Case 8. Lesion on breast where baby's mouth came in contact with breast.

10. Mrs. D.; lesion on gums, following work by dentist. Wassermann positive.

11. Mrs. H.; lesion in tonsil socket following tonsillotomy. Wassermann positive several weeks later.

12. Mr. S., grocer; lesion on back of left hand.

13. Mr. J.; lesion on abdomen midway between umbilicus and symphysis.

14. Physician. Lesion on left thumb.

15. Dentist; lesion on left thumb.

16. Dentist; lesion on middle finger.

17. Physician; lesion on thumb. Tissue removed.

18. Physician; lesion on thumb.

19. Physician; lesion on index finger.

20. Physician; lesion on middle finger.

21. Physician; lesion on index finger and upper lip. Wassermann positive.

22. Dentist; lesion on outer surface of left leg above ankle. Being treated for lymphangitis. Lesion appeared several weeks after treatment. Wassermann positive several weeks after treatment. Wassermann positive several weeks later.

23. Physician; lesion on index finger. Tissue examined. Wassermann positive.

Lesions occurred as follows: On the lip, 6; tonsil, 3; tongue, 1; gums, 1; breast, 1; hand, 1; leg, 1; abdomen, 1; thumb, 4; index finger, 3; middle finger, 2; two had double lesions; one, tongue and tonsil, and the other, in the physician, index finger and lip.

Among the physicians, three were on the thumb, two index and one middle finger.

Two, and possibly three, of the cases, can be attributed to professional negligence in the care of patients. These are the tonsillectomy, gums and possibly the leg case. All of the cases in the physicians and dentists, with the exception of the leg case, can be attributed to personal negligence. Even the leg case may have been infected by the dentist himself. Such an occurrence is entirely reasonable. Eight of the ten doctors had positive Wassermanns, indicating the length of time allowed to elapse before an attempt at accurate diagnosis was made. These cases above all others should have had early dark fields. Four of the doctors were from rural districts, six from the cities. Four of the cases among the laity, including the baby and its mother, were from the country, the others from the city. The two infections caused by professional negligence (the gum and tonsil cases, Nos. 10 and 11), occurred in the city.

No effort will be made in this paper to go into the subjects of diagnosis and treatment to any great extent. Suffice it to say that any lesion, especially if located on the lips or hands, or elsewhere, that does not heal promptly and with ordinary treatment, should early be regarded with suspicion. The character of the lesion, the location, the history, enlargement of regional lymph nodes, should all be taken into consideration. Differential diagnosis as between malignancy (epithelioma) is the most frequent stumbling block. Occasionally other lesions, such as tuberculous ulcers, Vincent's angina or streptococcal ulcers in throat, and possibly others, occur. Smears from these, appropriately stained, sections from the margin of the ulcer, dark field examination of a drop of the serum from the lesion and the Wassermann test should be sufficient to make a diagnosis. The dark field should be used very early in the case. The Wassermann is rarely positive early enough in the case to be of much value in the treatment of such a lesion. The Wassermann is of more value in the latter stages of the lesion, after it has been present for four or five weeks or more. No lesion should be allowed to go such a length of time without resorting to every possible diagnostic aid. The treatment is the same as that for any case of primary lues. From a public health standpoint, the instruction to be given the patient to prevent the spread of syphilis is just as important as the treatment.

¹The statistics in this paper are taken from "Syphilis and Public Health," by Edward B. Vedder, A. M., M. D., Lt. Col., Medical Corps, U. S. A., to whom grateful acknowledgement is made.

²Publication No. 12, The Committee for Civilian Co-operation in Combating Venereal Disease, Council of National Defense.

³Venereal Disease Bulletin No. 47, Treasury Department, Washington.

⁴Private Communication from Officer in Charge Venereal Disease Control, State Board of Health.

SURGERY IN INFANTS.

By Dr. L. L. Sheddan, M. D.,
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There are but few pathological conditions of the abdominal viscera met with in children which necessitate surgical interference. How-

ever, these few conditions are met with sufficient frequency to make them of very considerable importance and should be very clearly understood by the general practitioner, as the result of operative treatment rests very largely upon the element of time. It is especially important that these conditions be recognized early, for the reason that infants bear surgical manipulations of the abdominal viscera very poorly, and if the vitality is very markedly reduced disastrous results may be expected.

Again, the surgeon who does not realize the great importance of speed in his work and the necessity of gentle manipulation of the viscera in infants had best not attempt abdominal surgery in this class of patients. Prolonged anesthesia within itself tends to produce shock. This, coupled with prolonged or rough manipulation of the abdominal contents, will surely be followed by a high mortality. On the other hand, when a diagnosis of an abdominal lesion is made early before there is great shock, prostration or inanition, surgical operations are reasonably safe and results most gratifying.

Then to sum up the situation we will say that promptness and correctness of diagnosis coupled with rapid and gentle operative work upon the part of the surgeon will be followed by most satisfactory results, while delay in diagnosis and improper treatment pending the same, coupled with prolonged anesthesia and unskilled surgery will make disastrous results. An early operation done by an unskilled surgeon, or a late operation done by the most skilled operator will but be unsatisfactory and disappointing.

The conditions most frequently met with in children demanding abdominal operation are:

1. Intestinal obstruction due to intussusception.
2. Acute appendicitis.
3. Hernia.
4. Congenital hypertrophic pyloric stenosis.

The first two are acute and dangerous conditions which must be recognized early if anything is to be done to save them, while the last two named are chronic and afford more time for diagnosis.

We will take up these conditions separately and give a brief description of each: Intussusception is most frequently seen in children before the end of the second year and is the most frequent form of intestinal obstruction in infancy and childhood. The intussusception may occur in any part of the alimentary canal, but is most frequently of the iliocecal variety. The cause of the condition is obscure and we will not deal with that phase of the subject. The symptomatology of intussusception is very characteristic and very few mistakes need be made, provided the attending physician is on the alert for the condition. However, it is not seen sufficiently often by any one general practitioner to cause him to be familiar with the clinical picture and, of course, he may be more readily excused for not recognizing it than can the surgeon who is accustomed to dealing with such cases.

The clinical history of a case of intussusception is about as follows: A child previously healthy and, usually, under two years of age, will become suddenly sick with colicky pains in abdomen. It will squirm and cry for a few minutes, then apparently get easy. This may be, and usually is, an early symptom, while it may be delayed for some hours. There may be one or two bowel movements to be followed by more or less straining and possibly some small stools of mucous and blood. Temperature is normal or subnormal and if obstruction is complete there will be considerable shock and prostration. Still I have seen them bright and playful between the paroxysms of pain.

The thing that is so confusing to the general practitioner is the bowel movements, which would seem conclusive evidence that there is no obstruction, and the diagnosis of dysentery is usually made. It should be borne in mind that the colon may be full of matter below the intussusception, which of course will be rapidly evacuated. This will then be followed by the blood stained small mucous stools so characteristic of the conditions. The regularity of the paroxysms, the vomiting and this character of the stool, subnormal or normal temperature coming in an active, healthy child are almost conclusive evidence of the condition present. In a very short time a mass may be felt in the right side. This, how-

ever, is not a constant symptom but when present should be sufficient to enable any one to make diagnosis. However, it is very dangerous to wait for the formation of the tumor, as the success of the operation very largely depends upon early recognition of the condition present.

A large enema, with the child in the inverted position, should always be tried before resorting to operative procedure. The intussusception is occasionally relieved by hydrostatic pressure. This must be done in the incipency of the disease, as it is useless after adhesions have formed.

The next condition we will consider is congenital hypertrophic pyloric stenosis. This is a condition met with more frequently than is usually supposed. It is, however, not recognized and the infant gradually dies of starvation. I will not go into a discussion of the probable etiology of this condition, as that is still a mooted point, but will give a brief description of the clinical manifestations:

The child at birth may be apparently a perfectly developed child and present no abnormality. In about ten days or two weeks it will begin to vomit its milk—at first just occasionally, but gradually more and more until practically the whole amount taken is regurgitated. The infant begins to lose flesh and rather rapidly becomes emaciated. There is no fever and the stools will present very little evidence of curdled milk. The vomiting is rather projectile and not accompanied by much nausea. The diagnosis of indigestion is usually made and all kinds of variations in the milk and drugs administered until it is too late to resort to surgical procedures. The most characteristic symptom is the peristaltic waves which can easily be seen moving from left to right across the epigastric region. If the child is stripped and laid upon its back and given a small amount of fluid there can be seen in a few minutes the characteristic waves passing from left to right. It looks as though a ball were rolling under the abdominal walls. These waves can sometimes be made more distinct and vigorous by thumping or tapping over the stomach. A tumor can sometimes be felt in the pyloric region, which, of course, when felt and taken in connection, is pretty clear evidence. The

tumor is small, about the size and shape of a small olive. The tumor cannot always be felt and the condition should not be permitted to reach a hopeless stage while waiting for detection.

A great many children will regurgitate their milk, especially any excess but they do not lose weight and become emaciated. On the other hand a child with a true pyloric stenosis will gradually lose weight, the rapidity of loss being in proportion to the amount of obstruction. We sometimes see cases of spasmodic obstruction which closely simulate the true organic stricture, but a careful dieting coupled with an alkali will usually relieve this variety. When we have an infant who at about the 14th day begins to vomit its food and a systematic regulation of diet is tried with no relief, when daily weighings show a gradual loss of weight, and with very small amount of curds in the stools, we should strongly suspect pyloric stenosis.

If accompanied with the characteristic peristaltic waves and a small lump the size of the end of the finger can be felt on deep pressure over the pylorus, we are justified in calling it congenital pyloric stenosis and should advise operative procedures before emaciation becomes too far advanced. X-ray examination by the fluoroscope is a very valuable aid in making the diagnosis. If the operation is done early, before the vitality is exhausted, the prognosis is reasonably good, a point we will refer to later.

Acute appendicitis is rarely seen in children under two years of age, or if not rare it is rarely recognized. I have never in all of my experience seen a case in a child of this age, or if I have I have not recognized it as such and none have been referred to me by any general practitioners. However, when present, of course, surgical interference is urgently demanded.

Hernia, on the other hand, is frequently seen in infancy as a congenital defect, but it rarely demands an operation before the second year of life. A great many congenital hernia, close spontaneously. Others will close if a properly fitting truss is applied. Strangulation or incarceration are extremely rare. However, occasionally we see a congenital hernia which is so troublesome that it be-

comes necessary that an operation be done for its relief. To illustrate, I will report a case which came under my care some two or three years ago:

A male child aged 8 months, whose mother was in the last stages of tuberculosis when it was born, and which had been artificially fed had a large and troublesome scrotal hernia. The child was extremely emaciated, weighing only eight pounds. The hernia seemed to give it great discomfort and it would cry vigorously, which of course aggravated the trouble. All kinds of bandages and compresses had been tried until, when it came under my care, it was raw and excoriated from the umbilicus to its knees. The skin eruption looked like eczema. I put the child to bed and by using dusting powders on the eruption regulating the diet and paying no attention to the hernia, which by the way became very large, I succeeded in clearing up the skin eruption, and decided to try the application of an infant's truss. The truss was applied at night, but it failed utterly to control the hernia, so that same day I operated upon him. Upon opening the back I found a black and almost gangrenous appendix in the sack. The injury to the appendix had been produced by pressure between the pad of the truss and the pubic bone. The appendix was removed, the sac enucleated and the ring closed with chromic gut. The child made a beautiful recovery, gained four pounds while in the hospital, and in three months' time weighed 21 pounds. I recently had a second case very much like the first, but in which no attempt had been made to control the hernia, except a truss which had failed. This child's hernia would come down and at times would be difficult to reduce. This one was only three months old, but it made a beautiful recovery.

There are a few points to be considered in operating upon infants for these conditions which I especially want to emphasize. In intussusception, of course, the one important point is an early diagnosis. If the condition is permitted to exist for many hours, especially if strangulation is present, the mortality will be exceedingly high, no matter how skillful the operator. On the other hand, if an early operation is done, the prognosis is very good indeed. The next point is to get

in and get out rapidly, with as little handling of the viscera as possible. Some authorities advise reduction without delivering the intussusception from the abdomen. This may do in some cases, but will not do in all. I prefer to see what I am doing, as I think the reduction can be more satisfactorily made and time can be saved. Do not pull the invaginated gut out, but by steadying the neck of the invagination and squeezing it out, like squeezing out a plum seed, if necessary at the same time making slight traction. If adhesions have not formed, reduction is easily accomplished. When reduction is made, inspect the invaginated portion and see if circulation is going to be established. If an early operation is done there is practically no danger of gangrene, but should it be present there is only one thing to do, and that is resection, which is a very serious operation because of the length of time necessary to make the anastomosis. If no gangrene is present drop the gut back and get out of the abdomen.

In operating for a hypertrophic pyloric stenosis it is only necessary to make a very small opening over the pylorus. Pass the fingers in and hook it under the pyloric end of the stomach and bring the pylorus into the wound. A tumor the size and shape of an olive will be found surrounding the pyloric opening. Grasp between thumb and finger of left hand and make incision down to the mucous membrane, but not through it. All the fiber of the muscular tumor must be cut, but don't extend incision on to the duodenal side because of troublesome hemorrhage—and that is what you want to avoid because of the time necessary to control it. After the incision is carried down to the mucosa, take the handle of scalpel or point of hemostat and dissect it loose from the muscular layer on both sides of incision so that it will protrude into the incision and permit a union of the cut surfaces. This is simply the procedure advised by Ramstadt and further elaborated by Downs, and is most satisfactory. There have been many other operations devised and many variations of the Downs operation proposed, but in my judgment their advantages do not begin to compensate for the time it takes to carry them

out. Gastro-enterostomy is no longer practiced for this condition, the simple operation of Downs meeting all the requirements and can be done in a very few minutes. Some advise doing it under local anesthesia, which I have not tried, as I prefer doing all abdominal operations under general anesthesia.

One other point and one that I want especially to impress upon you, is not to depend upon catgut entirely in closing your abdominal incisions in infants. I don't know that there is any especial ferment in the infant's tissues which rapidly absorbs the catgut, but I know from sad experience that it soon gives way and allows your incision to come open. It is far better to first put in a row of silk worm gut, through and through stitches. And then stitches should be placed close together and some distance from the margins of the wound. Then close the peritoneum and fascia with catgut and finally tie the silk worm gut sutures. I find in looking up the subject that other men have made the same observation and they all tell you the danger of the incision coming open in infants. I don't want to bore you with long reports, but would like to report a few cases which are to me most interesting and serve to emphasize some of the points I have just spoken of.

Case 1.—Baby I, aged 8 months, a strong healthy child, was taken suddenly ill with violent cramps in the abdomen, vomiting and bloody stools. Dr. Wood was called to see the case and, being suspicious, told the family what he suspected. He ordered a large enema, which gave no relief, but which was followed by the characteristic bloody mucous stools. He asked me to see the case with him and I readily concurred in the diagnosis. Inside of twelve hours the patient was taken to the hospital and the abdomen opened, when a peculiar intussusception was found. The descending colon was swallowed, as it were, by the transverse. No trouble was experienced in squeezing it out, and the abdomen closed and the patient put to bed in less than 30 minutes. The baby's bowels moved next day and it made a rapid and complete recovery.

Case 2.—Baby H., aged 8 months, was a parallel case, also seen by Dr. Wood, who was called in after another physician had made

the diagnosis of flux and had given calomel. He at once recognized the condition and sent the baby to the hospital inside of twelve hours from the beginning of the attack. We operated, finding an iliocecal intussusception which was easily reduced and quite dark, but it soon regained its normal color. The appendix was drawn in by the invagination and looked contused and dangerous, so we ligated and removed it. The abdomen was closed in the usual way and did nicely for two or three days, when the interne in examining the dressings discovered a coil of the intestine under the dressing. I was called at once and had to make another closure, which I did with silk worm gut. This baby also made a rapid recovery.

Case 3.—Baby S., aged 8 months, was a parallel case to the above and the diagnosis was made by Dr. Layman, upon his first visit. However, he asked me to see the baby with him, which I did, concurring in his diagnosis. We gave large enema but got no relief, so we took it to the hospital and operated inside of twelve hours from the beginning, finding intussusception of iliocecal variety which was easily and rapidly reduced and patient put to bed in very few minutes. This one also made rapid and complete recovery.

I saw another case with Dr. Wood, presenting typical symptoms of intussusception which was relieved by large enema.

Case 4.—Baby T., aged 5 weeks, a patient of Drs. W. L. McCrary and O. W. Hill, had all the symptoms of pyloric obstruction. The tumor could even be felt and the peristaltic waves were most vigorous and pronounced. The baby had lost considerable weight and was beginning to have the pinched and drawn features seen in extreme inanition. After systematic treatment without any benefit, I was asked to operate upon it. It was taken to the hospital and under ether anesthesia I did the typical Downs operation and as I thought made a most thorough closure of my incision and put the patient to bed. The whole time consumed was not over 15 minutes, and part of that was consumed in controlling a little hemorrhage. There was no shock at all, and the baby did beautifully until I went to change the dressing next day, when in removing the adhesive plaster I made the little

fellow scream and cry, and when I took off the gauze pads I found a portion of the stomach protruding through the incision. I called Dr. Hill and Dr. McCrary, and as soon as I could get the little fellow to the operating room, by which time practically the whole abdominal viscera had escaped and the child was in profound shock. This I rapidly closed up as soon as it was anesthetized and the abdominal viscera returned. I made my closure this time with through and through silk worm gut, and had no further trouble. The baby only vomited one time after the operation. I saw the father one day last week and he told me the baby was perfectly well, was 6 months old, and weighed 20 pounds.

I attribute the success in the management of these cases to the skill in diagnosis of these men. They recognized the cases in time to give me all the opportunity I needed to do a successful operation. The only credit I claim is the rapidity with which I did the work and in my not handling the viscera or doing unnecessary work. The only let I made was in closing the abdomen, and that is the thing which prompted me to write this paper, that I might warn any of you who may have to do an operation upon an infant to look well to your abdominal closure.

RECENT STATISTICS OF HEART DISEASE.

Of 8,408 deaths of males, analyzed by Frederick L. Hoffman, Newark, N. J. (Journal A. M. A., May 15, 1920), 1,811, or 21.5 per cent, were those complicated by diseases of the heart; and by specific impairments, 531 cases were complications of valvular disease; 347 cases, of endocarditis; 339 cases, of myocarditis; 215 cases, of organic diseases of the heart not otherwise specified, and 169 cases, of cardiac asthma and dilatation, etc. In the same experience there were 390 deaths from Bright's disease complicated by arterial diseases, principally cerebral apoplexy, from which there were 307 deaths; and arteriosclerosis, from which there were seventy-three deaths. The article contains many statistical tables, all of which are of value to practitioners of medicine.

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee

Office of Publication, 327 7th Ave., N., Nashville, Tenn.

JUNE, 1920

EDITORIALS

OUR NEW PRESIDENT.

Dr. Leon L. Sheddan is a native East Tennessean, having been born in Loudon County, in the village of Unita. His father moved to Maury County, Tennessee, in 1881; he read medicine in the office of his brother, W. K. Sheddan, at Williamsport for three or four years before entering medical college. He entered the Medical Department of the University of Tennessee at Nashville in the autumn of 1891, and graduated from that institution in 1893. Dr. W. D. Haggard, of Nashville, Dr. C. Jeff Miller, of New Orleans, and Dr. Sheddan were the three honor men of their class. Dr. A. F. Richards, of Sparta, the retiring President of the Tennessee State Medical Association, was also a member of this class.

After graduating Dr. Sheddan returned to his old home at Williamsport and practiced with his brother until the latter moved to Columbia. He remained at Williamsport until 1901, when he moved to Fayetteville, where he practiced for eight years, moving to Knoxville in 1909. In 1910 he was elected Professor of Gynecology in the Medical Department of Lincoln Memorial University, which place he held until that school was merged with the University of Tennessee and located in Memphis.

Since locating in Knoxville, Dr. Sheddan has limited himself to the practice of surgery and gynecology.

Dr. Sheddan has always been an enthusiastic medical society worker. He practiced in Middle Tennessee sixteen years, was a member of the Middle Tennessee Medical Society during all this time, and never missed but two of its semi-annual meetings; was Presi-

dent of this Society and President at the semi-annual meeting at Sparta, Tenn., in 1905.

After locating in Knoxville in 1909, he organized the Lower East Tennessee Medical Society, which had its initial meeting at Athens, in May, 1910. This Society was merged with the East Tennessee Medical Society in the fall of that year, since which time it has held semi-annual meetings with an average attendance of one hundred and twenty-five members, and is considered the liveliest society in the state. Dr. Sheddan has the record of having never missed a meeting of this society since becoming a member in 1909. He was elected President and presided at the Morristown meeting in the spring of 1912.

He has the distinction of being the only man in the state who has had the honor of the presidency of the Middle Tennessee, East Tennessee and Tennessee State Medical Associations; this is sufficient evidence of his reputation as an ethical medical man.

Dr. Sheddan was married to Miss Mattie Doesett, of Williamsport, Maury County, Tenn., February 22, 1899. They have no children.

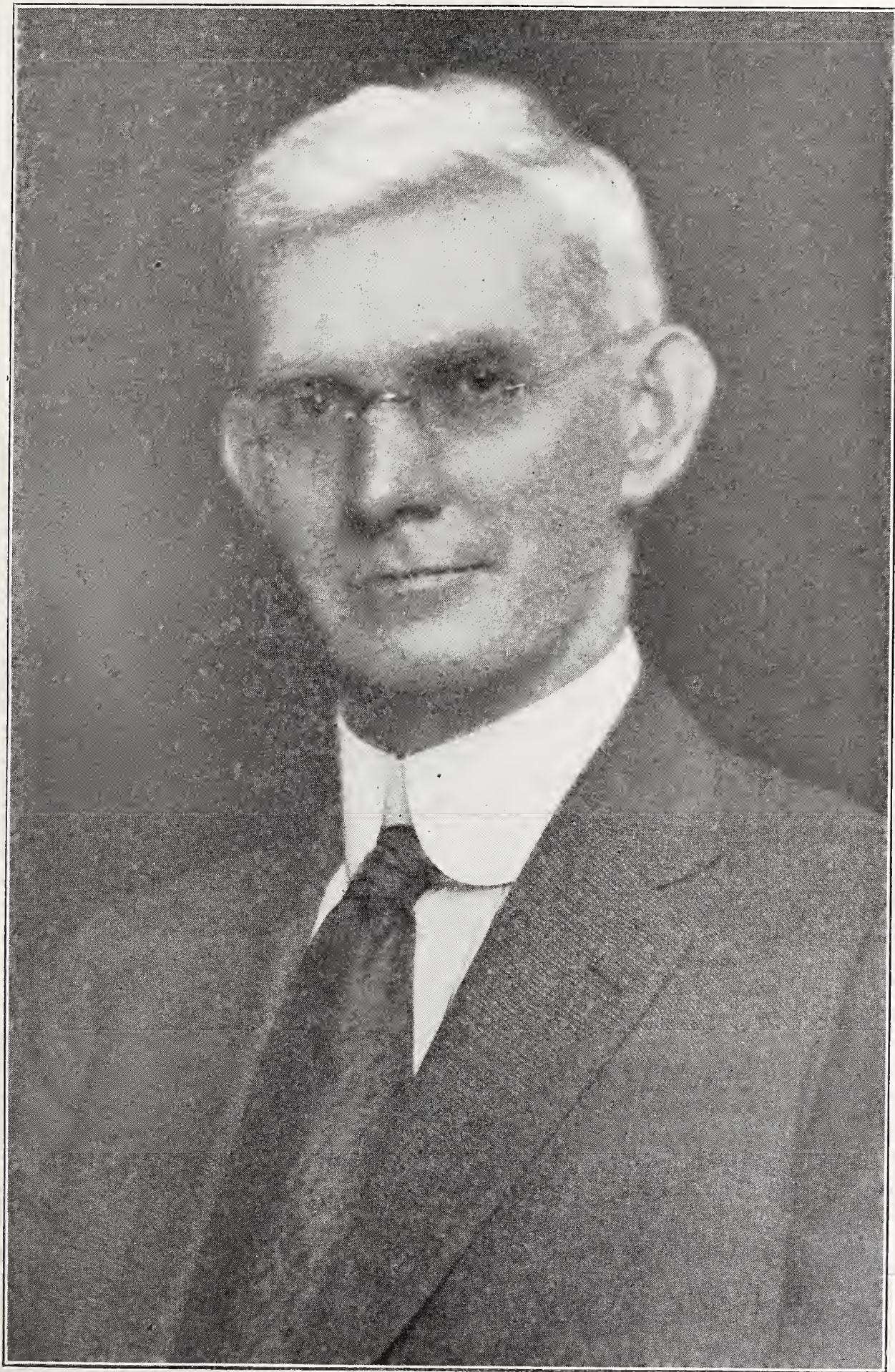
Dr. Sheddan was the moving spirit in, and heads the organization which recently erected and opened the Fort Sanders Hospital at Knoxville, one of the most modern and thoroughly equipped sixty-bed hospitals in the United States.

MALARIA IN TENNESSEE.

It is extremely difficult to ascertain the real facts concerning the prevalence of malaria, and it is doubtful that the figures which are supposed to represent the total number of deaths from this disease are even reasonably complete.

There is a tendency upon the part of many doctors, where malaria incidence is high, to call all things malaria. There is a neglect of precise methods of diagnosis that should not exist. In many places where malaria incidence is not high, but where the disease does occur, physicians do not consider it as much as it should be considered in many cases.

One who has studied mortality statistics and who has had opportunity to observe con-



DR. LEON I. SHEDDAN,
President Tennessee State Medical Association.

ditions with respect to the general health of the people in all parts of Tennessee can hardly escape the conviction that malaria is, in all probability, not assigned as the cause of death in as many cases as it should be. We heard a physician, who lives in a part of the state where malaria is known to be prevalent, say upon once occasion that he had never seen a death due primarily to malaria. He further stated that he had lately had two deaths from haematuria, but that they were both due to typhoid fever. None can say, and none will ever be able to say, how many deaths charged to typhoid are really chargeable to malaria until more care is taken by those who now neglect to use the more dependable measures of diagnosis.

"Congestion!" Oh, "congestion!" How much carelessness or ignorance is hidden behind thee! "Congestion of the brain," "congestion of the stomach," "congestion" of this and of that, in old and young, black and white, male and female! What is "congestion"? How does it behave? How does it kill? What is it due to? If we do not know, let's try to find the answer to some of these questions about "congestion." If it is malaria, let's say malaria. This use of "congestion" as a cause of death is getting to be almost as common as "boil hives," "bole hives," "bowel hives" and "bould hyves" all combined as these senseless and variously spelled terms combined are used by ignorant midwives.

A great many cases of malaria can be accurately and positively diagnosed by the laboratory when clinical evidence is not conclusive and, in some instances, when the therapeutic test has failed. And there are not many physicians who are out of reach of a laboratory. The State Board of Health has two laboratories, free to all physicians and citizens—one at Nashville and one at Memphis. And there are splendid private laboratories in every city in Tennessee.

Two hundred and fifty-six deaths were registered by the State Board of Health of Tennessee in 1919 as due to malaria. Of these 201, or 78.5 per cent, occurred in West Tennessee; 40, or 15.6 per cent, in Middle Tennessee, and 15, or 5.8 per cent, in East Tennessee.

There were a number of deaths attributed to "congestion" which were not classified, because "congestion" does not mean anything.

The Tennessee State Board of Health, with the kindly co-operation of the United States Public Health Service, and the International Health Board, and with the financial assistance of the two towns concerned, is conducting anti-malarial campaigns in Brownsville and Dyersburg. The measures employed will be directed most largely against the malarial bearing mosquito. It is to be hoped that the possibility of controlling malaria in restricted areas can be positively demonstrated.

ONE THOUSAND CASES V. D.

The Interdepartmental Social Hygiene Board has recently sent out a bulletin presenting some interesting facts gathered in a study of one thousand consecutive cases of venereal disease in the United States army, the study having been made by Col. P. M. Ashburn.

There were 661 cases of gonorrhoea, 220 of chancroid and 103 of syphilis referred to in the summary.

Information secured from 942 showed that infection was contracted in houses of prostitution in 360 cases and outside of such houses in 582 cases.

In 140 cases of 952 drink was an admitted factor.

Of 968 from whom this information was obtained, 461 took prophylaxis and 507 did not. Thus in 47.6 per cent of all cases infection followed prophylaxis. The average time from first exposure to the time of using prophylaxis was two hours and six minutes. The average time elapsing between the infective intercourse and date of detection of infection was 23.1 hours.

Six of the total number of cases studied received their infection in Chattanooga, one in Johnson City, two in Knoxville, and three in Nashville.

THE PROFESSIONAL DIRECTORY.

For a long time a number of our members inserted cards, giving their names and ad-

dresses and stating the particular line of scientific work in which they were engaged, in a "Professional Directory" which appeared each month in the advertising pages of the Journal. A charge of five dollars a year was made for each card. This directory was discontinued because some of our fellows seemed to think that it was not just the right thing for these cards to appear as advertisements.

Since the discontinuance of the directory a number of letters have come to the Journal asking why we did not follow the example of numerous other state journals and print a physicians' card directory. The following letter from Dr. Holman Taylor, Editor of the Texas State Journal of Medicine, is typical:

Fort Worth, Tex., June 1, 1920.

Dr. Olin West, Editor-Secretary, Tennessee State Medical Association, 601 Cedar Street, Nashville, Tenn.

Dear Doctor:

Dr. C. P. Brewer, of Fort Worth, came to me today to secure a reference to a genito-urinary practitioner in Memphis, Tenn. I immediately thought of your journal and turned to its advertising pages to secure for him the address he required. I was surprised to find that you had no professional directory there, and I am wondering whether you have made an effort to secure business of this character. From my own experience in such matters, I am convinced that no better method of locating reliable practitioners can be found than that of looking into the classified directories of state journals. No state journal will accept the advertising of an unreliable or incompetent practitioner.

I am sure you will understand why I write this letter and not consider that I am seeking to criticize your advertising policy, but rather to help you and perhaps to help myself later on, should you decide to install a department of this character. With best wishes,

Fraternally yours,

HOLMAN TAYLOR,
Secretary-Editor.

If enough of our members wish to have it done, we will again print professional cards grouped together in a directory in our advertising pages each month. The old charge of five dollars a year will apply.

INCOMPLETENESS OF MINUTES.

Because it was not possible for Mr. Wm. Whitford and Mr. W. O. Beall, the gentlemen

who have been official stenographers at former meetings of the Association, to get to the Chattanooga meeting, it was necessary to secure the services of local reporters at our last session. None of the gentlemen employed had ever "taken" a medical discussion before and were, of course, severely handicapped. Because of the inexperience of our reporters it was not possible for us to secure complete stenographic reports of the proceedings of the House of Delegates, the general sessions, nor of the scientific discussions.

We regret that the minutes as published in last month's Journal are not complete in detail as in former years, but hope everybody will appreciate the difficulties under which we labored.

TYPHOID FEVER IN TENNESSEE IN 1919.

The table which appears below shows the number of deaths from typhoid registered by the Bureau of Vital statistics in each county in the state in 1919, the mortality rate for the State and the distribution of deaths for each grand division.

The total number of typhoid deaths for the State in 1919 is 41 less than the number recorded in 1918 and would have been some 10 per cent lower but for a most unfortunate accident by which the public water supply of one of the large cities became contaminated, thus causing a large number of typhoid deaths.

Typhoid is showing up in several counties this year earlier than usual. Vaccination is a very powerful aid in the prevention of typhoid, and it is to be hoped that the physicians of the State will urge their patients to avail themselves of the protection to be had against typhoid through this means.

Typhoid Fever, 1919.

	No. Deaths
Anderson County -----	4
Bedford County -----	9
Benton County -----	4
Bledsoe County -----	1
Blount County -----	11
Bradley County -----	4
Campbell County -----	5
Cannon County -----	1
Carroll County -----	7
Carter County -----	5

Cheatham County	4	Overton County	3
Chester County	7	Perry County	4
Caliborne County	3	Pickett County	3
Clay County	1	Polk County	4
Cocke County	12	Putnam County	7
Coffee County	2	Rhea County	2
Crockett County	3	Roane County	8
Cumberland County	3	Robertson County	8
Davidson County (outside of Nashville)	5	Rutherford County	8
Nashville	19	Scott County	3
Decatur County	1	Sequatchie County	1
DeKalb County	6	Sevier County	2
Dickson County	1	Shelby County (outside of Memphis)	13
Dyer County	3	Memphis	93
Fayette County	7	Smith County	8
Fentress County	1	Stewart County	7
Franklin County	7	Sullivan County	6
Gibson County	18	Sumner County	4
Giles County	12	Tipton County	6
Grainger County	6	Trousdale County	3
Greene County	9	Unicoi County	3
Grundy County	2	Union County	5
Hamblen County	2	Van Buren	0
Hamilton County (outside Chattanooga)	4	Warren County	5
Chattanooga	5	Washington County	13
Hancock County	7	Wayne County	5
Hardeman County	4	Weakley County	6
Hardin County	9	White County	5
Hawkins County	7	Williamson County	8
Haywood County	9	Wilson County	17
Henderson County	3		
Henry County	9	Total	648
Hickman County	3		
Houston County	1		
Humphreys County	2		
Jackson County	2		
James County	1		
Jefferson County	7		
Johnson County	2		
Knox County (outside of Knoxville)	4		
Knoxville	15		
Lake County	1		
Lauderdale County	11		
Lawrence County	5		
Lewis County	0		
Lincoln County	3		
Loudon County	2		
Macon County	6		
McMinn County	11		
McNairy County	4		
Madison County (outside of Jackson)	13		
Jackson	8		
Marion County	2		
Marshall County	9		
Meary County	10		
Meigs County	0		
Monroe County	9		
Montgomery County	6		
Moore County	0		
Morgan County	1		
Oblion County	1		

Mortality rate, 28.1 per cent. East Tennessee counties, 182 deaths, or 28 per cent; Middle Tennessee counties, 226 deaths, or 34.8 per cent; West Tennessee counties, 240 deaths, or 37 per cent.

MISCELLANEOUS

IMMEDIATE STERILIZATION OF WOUNDS.

As an apology for presenting a new method for the immediate disinfection and closure of chronic infected wounds, W. Wayne Babcock, Philadelphia (Journal A. M. A., May 8, 1920), says that a treatment successful in the hands of highly skilled enthusiasts may fail in routine use when it exacts infinite care as to detail over prolonged periods of time, and when it is adapted only to selected cases and requires repeated operations and multiple and, at times, exceedingly painful dressings. The average surgeon is not constituted to

stand on tiptoe all the time, his technic is not invariably perfect, and his soul rebels against the constant infliction of pain. It is not strange, therefore, that he has so often failed in his Carrel-Dakin treatment. The new method consists of four procedures carried out in one operation under anesthesia: 1. Chemical sterilization of all sinuses and wound surfaces by the injection and application of a saturated solution of zinc chlorid. 2. Delineation of infected areas by the injection or application of an alkaline ethereal solution of methylene blue. 3. Mass excision of the entire area of infection. 4. Wound closure with the obliteration of all dead spaces. As to the final percentage results, it is too early to speak positively except in regard to soft tissue wounds which, as a rule, are easily and satisfactorily handled by the method. Unless the surgeon can prevent the entrance of the zinc chlorid into the general circulation during and for five minutes after the injection, and unless he is able to excise freely all chlorided tissue adjacent to the important structures, he should not employ the method.

CORPUS LUTEUM.

Armour & Co. have added 5-grain tablets of Corpus Luteum, Ovarian Substance, Anterior Pituitary Substance, to their list. These tablets are packed in bottles of 50 and are labelled "5 grain." Each tablet contains 5 grains of the desiccated glandular substance, each grain of which represents a quantity of fresh tissue.

Physicians desiring to use the Glandular substances in tablet form may now obtain the Armour products in 5-grain tablets, as well as the 2-grain.

SIGNIFICANCE OF THE DIFFERENT TYPES OF PNEUMONIA FOLLOWING INFLUENZA.

In a study of the pulmonary lesions following influenza, the impression was gained by B. S. Kline, New York (Journal A. M. A., May 8, 1920), that an associated pulmonary edema is a factor of great importance in determining the rapid extension of the inflam-

mation throughout the lung, and that in the absence of this edema, the lesion remains localized about the bronchial branches. The observations recorded in this paper were made during the epidemic of influenza in the American Expeditionary Forces' hospital center at Bazoilles, Vosges, France, between Sept. 2 and Dec. 27, 1918. About 200 patients died there with pneumonia following influenza, and of these, 154 came to necropsy. In all cases there was a tracheitis and bronchitis. The most striking lesion, however, was observed in the lungs. In the vast majority (86 per cent), the consolidation was widespread, involving three or more lobes; in one-half of the cases all five lobes were affected. The pulmonary consolidation in these cases varied in character; discrete lesions in some cases contracted sharply with confluent consolidation in others. The discrete lesions were peribronchial and peribronchiolar; the confluent lesions were coalescing lobular in type. A considerable number of the cases showed both discrete and confluent consolidation. In peribronchial and peribronchiolar pneumonia the lung was quantitatively much less involved than in the other types, and this may explain the longer average duration of the disease and the smaller percentage of fatal cases of discrete pneumonia, as compared with the confluent pneumonias. A description of the pulmonary lesions is given.

THE FUTURE OF OBSTETRICS AND GYNECOLOGY.

The topics considered by Reuben Peterson, Ann Arbor, Mich. (Journal A. M. A., May 15, 1920), in his address, as chairman, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the seventy-fifth annual session of the American Medical Association, New Orleans, April, 1920, are: The specialty of obstetrics and gynecology; training of the specialist in obstetrics and gynecology, and the relation of abdominal surgery to obstetrics and gynecology. He states that the trained obstetric and gynecologic surgeon must be versed in abdominal as well as pelvic surgery in order to be competent to meet the emergencies that will arise in his special surgical work. While making no

claims for specialization in abdominal surgery, the obstetric and gynecologic specialist must be prepared at any moment to resect the intestine and care for the appendix and gall bladder, if such surgery is demanded when the abdomen is opened for pelvic disease. This is only justice to the patient, and is common sense as well. In order to be competent in surgical work of this description the obstetrician and gynecologist must not only have had the necessary technical experience but must be conversant with the literature and the constant improvements taking place in abdominal surgery. Actual experience and technical skill in abdominal as contrasted with obstetric and gynecologic surgery should be acquired in departmental hospital clinics by co-operation with the general surgical clinics. Arrangements can easily be made for interchange of services at some period of the training, to the mutual benefit of the members of both the obstetric and gynecologic and general surgical staffs. In fact, this principle of free interchange of services should not be confined to surgery alone, but should apply to all departments of the hospital, where such an arrangement will make for better training in obstetrics and gynecology.

TUBERCULOUS ENTEROCOLITIS.

The pathology of tuberculosis of the intestine is divided by R. D. Carman, Rochester, Minn. (*Journal A. M. A.*, May 15, 1920), into three types: (1) nodular; (2) ulcerative, and (3) fibrous. He points out that a lesion roentgenologically demonstrated in the ileocecal coil, with irregularity of bowel contour and without the physiologic barium shadow in the cecocolon, although it may represent any ulcerative process, is probably tuberculous if pulmonary tuberculosis is present. The tuberculous lesions may be nodular, ulcerative or fibrous. They are usually associated to a greater or less extent, dependent on the stage of the disease. The nodular type is recognized by means of the roentgen ray only if it encroaches on the lumen of the bowel, and the ulcerative and fibrous types by irregularity of contour, and in the

terminal stages by obstruction. The presence of spasm must not be overlooked, since it often causes irregularity of contour and is diagnostic even when the lesion itself is not demonstrable. The opaque enema generally is preferable to the ingested meal in demonstrating the filling defect and spastic phenomena which are roentgenologic signs of tuberculous colitis. A gap in the physiologic barium shadow of the cecocolon in the more advanced cases is demonstrated by the ingested meal, but unquestionably the disease will be demonstrated earlier by the enema.

ARE WE LOSING OUR GRIP ON SMALL-POX?

The nineteenth century witnessed the control of a most serious disease, smallpox. Prior to Jenner's discovery of the value of cowpox vaccination, the world contributed millions of lives to this disease. The person without pox marks used to be a curiosity. Now he is a rarity.

This last winter Toronto experienced a large epidemic of smallpox. Detroit has had an unusual number of cases this last month, 156 cases in the five weeks ending May 1st as compared with 95 cases for the previous five-week period.

It is the same old story of the person who has never been successfully vaccinated. Not one case had been successfully vaccinated within eight years. The roving colored adult male is showing eight times as much smallpox in proportion to his numbers as the Caucasian. There are scarcely any cases among the foreign born, who presumably were reached by the strict vaccination laws in many European countries. The alarming feature is that 24 out of 138 cases investigated are public school children. Is it possible that by letting up on our vaccination requirements for school children we are rearing a new generation of susceptibles who, when their numbers become sufficient, will supply a fertile field for smallpox to again play wholesale havoc? It is so easy to put off vaccination. Would we not be doing mankind a service by rigidly insisting on this precaution for all children admitted to any public or private school?

We mourn the lack of a panacea for influenza. Are we to trifle with the most perfect disease preventative we have, vaccination against smallpox?—Detroit Weekly Health Review.

CANNON BELIEVES PATENT FLOURS MAKE PELLAGRA.

Wilbur F. Cannon, Colorado's pure food and drug commissioner, has prepared the following article for reproduction in several Eastern magazines:

It seems that it is the consensus of opinion now among authorities that pellagra, which has been so prevalent in the Southern States, is caused by some error of diet. Some food is eaten in excess, that lacks the necessary constituents to promote good health, or else some food is eaten which has had the desired elements extracted or destroyed. Scientists are groping blindly in the dark with as yet only a measure of success in finding what the trouble is.

They have about concluded that it is caused by the lack of an element called vitamins.

Nobody knows exactly what vitamins is. No one has been able yet to catch one. None are on exhibit in the national museums. But still, it is known that they exist.

It is pretty definitely understood that vitamins do exist and that the lack of them produces pellagra. In endeavoring to ascertain what particular food is lacking this peculiar substance, we arrived at conclusions by eliminating one food after another, and then taking up another for consideration.

At the present time, self-rising flour is under consideration. This flour is considerable of a fake. Its price is out of all proportion to its intrinsic value. It's a lazy woman's delight. Any woman who is fool enough to pay the flour trust 10 to 20 per cent more for a bag of flour because she is too lazy to put a teaspoonful of baking powder in a quart of flour ought to have the pellagra. In fact, she ought never to be on speaking terms with vitamins.

Ordinary Flour.

Self-rising flour is simply ordinary flour containing a certain per cent of phosphate of lime, or burnt alum, or both, and bicarbonate of soda. These are just the ingredients that are used in baking powder. The only difference is that in baking powder the water is dried out of all of its ingredients and they are kept dry in a tin can.

When they are put in the self-rising flour, however, the flour contains a great deal of moisture and, in a warm climate, like in the Southern states, when brought into contact with cer-

tain elements resembling nitric acid in the flour, caused by bleaching, the phosphate of lime, or burnt alum, being dampened and warmed by moisture in the flour, and in the climate, attacks the bicarbonate of soda, decomposition takes place and the carbonic acid gas escapes through the flour.

It is thought that perhaps this slow process of decomposition, or sweating, might result in robbing the flour of its vitamins and thus producing and spreading pellagra. Until this is satisfactorily determined, we should take no chances, unless we desire to swell the coffers of the flour trust.

MECKEL'S DIVERTICULUM.

Daniel A. Borden, Washington, D. C. (Journal A. M. A., May 8, 1920), reports a case in which there was an unusual pathology lesion of Meckel's diverticulum. The diverticulum had tied itself into a complete knot, including a coil of intestine about 2 feet in length. In order to untie this knot the diverticulum had to be cut near its base and its path retraced by means of a hemostat.

RULES AND BY-LAWS OF STATE BOARD OF HEALTH.

Cerebrospinal Meningitis.

Isolation:—Every case of epidemic cerebrospinal meningitis shall be reported to the health officer at once. The patient shall be isolated for a period of at least two weeks from the onset of the symptoms. The discharges from the nose, throat and mouth of the patient must be received on cloths and burned at once. After death or recovery of the patient all personal clothing and bedding, together with the contents of the room and the room itself, must be thoroughly disinfected under the supervision of the health officer. In case of death a public funeral or viewing of the deceased is forbidden. Every doubtful case of cerebrospinal meningitis must be classed as epidemic type and cared for accordingly until proven otherwise.

Common Drinking Cup.

No person, company or corporation having charge of control of any hotel, restaurant, theater, hall, store, schoolhouse, church, station, railroad train, steam or electric car, or other institution or conveyance frequented

by the public or which may be used for the purpose of a public assembly, or as a place of employment, may be permitted to furnish any cup, vessel, or other receptacle to be used by more than one person for the common, indiscriminate or promiscuous use or purpose of drinking therefrom.

Measles.

Isolation: All cases of measles shall be isolated as soon as the nature of the affection is suspected, and such isolation shall be continued until all catarrhal symptoms have disappeared.

Children and others who have been in contact with measles patients, and those living in the same house where cases are present, shall not be required to be isolated, but shall be prohibited from attending school or other public gatherings for a period of fourteen days from the last possible exposure. In the event of such children developing catarrhal symptoms, however, they shall be at once isolated.

Teachers and others in charge of schools shall be promptly notified by the proper health authorities of the names of pupils who have developed measles, and the names of contacts who have been prohibited from attending school.

During the prevalence of measles in a community teachers and others in charge of schools shall exclude children presenting catarrhal symptoms indicative of the disease. Teachers shall report to the health officer immediately the names of the public so excluded. Before permitting a child to return to school a certificate shall be required from the health officer or attending physician that it is no longer likely to convey infection.

The discharges and articles soiled by the discharge shall be promptly disinfected during the course of the disease. Terminal disinfection is not necessary, but the room should be thoroughly aired for twenty-four hours before it is occupied by a well person.

Ophthalmia Neonatorum.

Whenever one or both eyes of an infant become inflamed at any time within two months after its birth, it shall be the duty of any midwife, nurse, parent or other person having charge of such infant to report the facts of such affection to the attending phy-

sician or health officer of the county in which the person having charge of such infant resides, within twelve hours after ascertaining the fact.

Any health officer to whom may have been reported a case of eye disease in a child under two months of age shall forthwith visit such child and provide immediate medical treatment unless said child is already under the treatment of a competent medical practitioner.

Rabies.

When an animal, suspected of having rabies, has bitten a human being, the fact should be immediately reported to the county or municipal health officer, who shall secure or cause to be secured such animal alive and without injury, where this can be accomplished with safety. The animal shall be confined in a safe, quiet, roomy and comfortable place for a period of two weeks if death does not intervene. A report giving full details shall be sent immediately to the Secretary of the State Board of Health. This report shall include the name of the locality in which the biting occurred (city, village or town); the date of biting; the name, residence and address of the owner of the animals; the full name or names of the person bitten by the animal in question, together with the place of residence of each; the names, addresses and residence of all owners of animals which have been bitten by the animal in question, together with a list and description of the animals bitten and the disposition made of same.

When it becomes necessary to kill such suspected animal it must be done in such a way that no injury will be made to the brain or spinal cord. When an animal suspected of having rabies dies from the disease or is killed, the head and several inches of the neck must be cut off and sent to the State Board of Health Laboratory. It should first be wrapped in clean cloth and then carefully packed in a quantity of sawdust and ice, using such an amount of ice as will insure its reaching the laboratory in a cool condition.

Scarlet Fever.

Quarantine: The health officer having knowledge of or having reason to suspect the existence of scarlet fever, shall investigate, if

necessary, and shall at once place under quarantine all persons afflicted with scarlet fever and those having the care of and coming in contact with such patients, except the attending physician, health officer, sanitary inspector, or, in case of death, a licensed embalmer.

The quarantine period for scarlet fever shall never be less than three weeks and may be longer. Quarantine must not be released until the health officer has satisfied himself that desquamation (or peeling) is completed, and that the condition of the nose and throat is normal. But the patients shall not attend day school or Sunday school or any public or private gathering whatever until a second examination by the attending physician or medical school inspector, made not less than one week after release from quarantine, shall demonstrate a continuance of the normal condition of the nose and throat and the absence of desquamation. In case ear discharges exist, the patient shall report weekly for examination by the health officer and shall carry out such precautions to prevent the spread of infection therefrom as he shall prescribe. The quarantine must not be raised until three weeks or more, as the case may be, after the appearance of the disease in the last case in such family or household.

The apartments occupied by a scarlet fever patient shall be deemed infected, and when vacated by death or removal of the patient shall, together with their contents, be thoroughly disinfected under the supervision of the health officer. All persons having occupied such apartments during the quarantine period must have their clothing disinfected and take a disinfecting bath before being released from quarantine. All disinfection prescribed in this regulation shall be a part of the control of the disease.

No milk, butter or other dairy products shall be sold or given to any party, or delivered at any creamery or butter factory, from a house quarantined because of the presence of scarlet fever therein.

Every physician shall immediately report to the health officer the name of every patient under his care having scarlet fever, the state of his or her condition, and his or her place of dwelling. A report must be made for each case as it occurs in a family or household.

Every physician shall report in writing to the health officer the death of any scarlet fever patient under his care within twelve hours thereafter.

The health officer must immediately report to the Secretary of the State Board of Health all cases of scarlet fever occurring within his jurisdiction.

Smallpox.

Any person suffering from smallpox shall be quarantined, and shall be isolated in a special room set aside for that purpose, and from which all unnecessary furnishings have been removed, unless such person is removed to an isolation hospital or other place of detention where proper isolation can be maintained.

The attending physician, or, when no physician is in attendance, the head of the family, shall immediately report to the county or municipal health officer the existence of any case of smallpox that he may have under his care, or in his household, the state of his or her condition and his or her place of dwelling. The county or municipal health officer shall at once securely fasten in a conspicuous place upon the front of the dwelling in which said smallpox exists, a placard displaying the name, "Smallpox." The placard must be kept on the house until at least sixteen days after the appearance of the disease in the last case in said family or household.

All persons who have been exposed to smallpox shall be vaccinated, unless they have previously had smallpox. All such persons refusing to be vaccinated shall remain isolated for a period of sixteen days, and shall be kept under the daily observation of the health officer or his duly authorized deputy.

Persons residing in the house where any case of smallpox is found to exist shall be required to remain in such house, unless the person or persons having smallpox are removed to an isolation hospital or other proper place of detention, for a period of not less than sixteen days after the last date of exposure.

If the person or persons having smallpox be removed from the house, then other persons residing in the house shall be allowed, after having been vaccinated, to go about their usual pursuits, but shall be kept under the

observation of the health officer for a period of sixteen days after the date of the last possible exposure.

Quarantine shall be maintained in every case of smallpox until all scales and crusts have disappeared from the skin.

Trachoma.

Every physician engaged in the practice of medicine in the state of Tennessee shall submit to the municipal or county health officer the full name, specific residence and hygienic data of every person under his treatment or observation for trachoma or suspected trachoma within one week after the application of such patient for treatment.

The municipal or county health officer shall forward such information to the Secretary of the State Board of Health in his reports.

Any child who is known to have trachoma shall be excluded from attendance upon any school until the disease is properly treated and rendered noninfectious.

(To Be Continued.)

BOOK REVIEWS.

Care and Feeding of Southern Babies. By

Owen H. Wilson, M. D., Professor Diseases of Children, Vanderbilt School of Medicine, Nashville, Tenn. Baird-Ward Printing Co., Nashville, 1920. Cloth, \$1.25.

There is no doubt but that methods of feeding which work out splendidly for the babies of one clime are not applicable in another region, where extremes of temperature are widely different, where housing conditions are quite dissimilar, where servants of a rather low order of intelligence are the only available servants, and where the laws governing the production and distribution of milk are not especially well enforced. In the matter of clothing of babies, too, the general rules laid down for the guidance of mothers in northern regions, where the seasons are very definitely marked, must be modified for proper application in the South. The general ordering of the Southern baby's life is necessarily unlike that of the Northern baby. In the use of the prepared foods the general formula successfully used in one latitude will not

work satisfactorily in another latitude. Of course, any baby, anywhere, is a "law unto itself" and no hard and fast rule can be made to apply to babies as a class, but there must be general principles and general rules, and those laid down on a basis of experience in one section cannot always be safely followed in another section unless proper modifications, based on large experience, too, are made. It seems, therefore, that there is a distinct need for a book such as Dr. Wilson has prepared for distribution in our section of the country. The author has had long and large experience in a Southern practice, as well as extensive opportunities for observation of the methods used in the largest medical centers in this country and abroad, and is a most diligent student. His opinions and conclusions merit and receive most careful consideration.

Dr. Wilson's book is intended as a guide for the mothers of Southern babies, and in it they are given, in a most practical manner, the general information that every Southern mother should have.

We sent this book to a most intelligent and an experienced Public Health Nurse now on service in a Southern city. After a general commendation of the book and its purposes, her comment is as follows:

"Dr. Wilson's 'Care and Feeding of Southern Children' deals with problems and methods of child-raising in such a way that it will safely guide mothers and nurses in their great responsibility.

"It states clearly how far the mother should go and when she should call in medical attention. It defines humane treatment of the child and says that humane treatment is the mother's business. Many a mother has thought she was using good judgment in caring for her baby, to find to her sorrow that she had made grave mistakes. Any woman knows where her behavior is humane, but many must have the need for it called to their attention, and that is what 'Care and Feeding of Southern Children' does—it clearly and concisely emphasizes the need for humane treatment of children."

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TUMORS OF THE KIDNEY.*

By William D. Haggard, M. D., and
Henry L. Douglass, M. D.,
Nashville.

Very little was known about tumors of the kidney before the nineteenth century. According to Kelynae, Cervoisit and Leroux reported cases of tumors of the kidney in 1804. Cohnheim in 1875 pointed out that tumors derived their origin from cells, which being misplaced during the period of embryonal development persisted as foetal rests in the normal adult tissue. It is therefore important in considering the etiology of renal neoplasms to briefly review the development of the kidney.

The permanent kidney begins its development in human embryos as an outgrowth of cells from the Wolffian duct at the point where it bends to enter the cloaca. This outgrowth of cells assumes a tubular formation while its distal extremity becomes dilated and embedded into a mass of mesodermal cells, constituting the lowermost portion of the nephrogenic cord. This mass of cells surrounding the dilated extremity of the Wolffian anlage of the kidney assumes a cup-shaped appearance and is spoken of as the renal blastema. The kidney, though derived wholly from the cells of the mesoderm, has its origin from two anlage. The tubular portion of the Wolffian anlage is destined to become the ureter, its dilated distal extremity the true pelvis of the kidney. The secretory

portion and the collecting portion of the tubules originate independently, and in rare cases they may fail to establish communication, as a result of which urine would be excreted into a tubule having no outlet and a polycystic condition of the kidney would develop. Embryonal cells persisting in the cortex under abnormal or pathological conditions may proliferate, forming tubular structures at random with no regard to subsequent connections with the collecting system or with a proper and normal blood supply. Such tissue would be functionless and its growth would result in a foetal adenoma.

The formation of anomalies is interesting. Where the blastema of each kidney during development meets each other and fuses, a single kidney is the result. If the blastema of one side should grow across the median line and fuse with the opposite blastema a horseshoe kidney would be the outcome.

Grawitz in 1883 first called attention to hypernephroma as a type of tumor deriving its origin from inclusions of cells of the adrenal cortex within the developing kidney. Much has been written to disprove the Grawitzian theory. Wilson states that from a purely embryological standpoint it is highly improbable that foetal rests of the adrenal should occur in the kidney. He concludes that hypernephroma derives its origin from Wolffian rests. Stoerk states that it would be a curious fact indeed if the most common tumor of the kidney was of foreign origin. Grawitz in his original paper, however, set a marked limitation upon hypernephroma. The consensus of opinion at the present time seems to be in favor of his theory and it is quite possible that a large number of so-

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

called hypernephroma are not at all the true type as originally described by Grawitz.

Mixed tumors of the kidney are shown by the weight of evidence to spring from foetal inclusions. This type of tumor may contain any one of several varieties of tissue—for example, striped muscle, cartilage, connective tissue, fat, glandular tissue and perhaps bone. Wilms did considerable work on the etiology of these tumors and they are often called by his name. Other examples of tumors with undoubted embryonic origin are teratomas or dermoid tumors.

There are two periods of life during which renal neoplasms are most apt to occur—in early childhood and after the fortieth year of life. It would seem that young adult life is particularly free from this disease. Of 219 cases one hundred and sixty-eight occurred in the first five years of life. Rohrer says that one-third of all malignant tumors occur in children. It has been estimated that in every thousand patients a tumor of the kidney occurs from one to five times (Green). Tumors of the renal pelvis are much rarer than those which originate in the parenchyma. Johnson says that there were twenty cases in the Roosevelt Hospital from 1890 to 1900.

The benign tumors of the kidney, such as the fibromas, lipomas, adenomas, etc., comprise 6 per cent of all types. The most common type is the hypernephroma, which is said to constitute over 70 per cent of all the cases of renal neoplasms. Sarcoma is the most frequent form of malignancy in the young and it may attain very large proportions. In one reported case the tumor weighed 31 pounds and occurred in a patient eight years of age. True carcinoma is the form of malignancy met with during the years of maturity and old age. Primary tumors of the kidney are, as a rule, unilateral. In only 10 per cent of the cases is the disease bilateral. The tendency for malignant disease of the kidney to burst into and involve the veins at an early stage of the disease has long been noted. In one of our cases tumor cells were found inside the lumen of veins. The metastases may also take place by way of the lymphatics and the glands near the hilus of the kidney are often involved, which

is a very important point in surgical treatment.

Probably the most common initial symptom is hematuria, which is painless, and, generally speaking, total. An average occurrence of 42 per cent occurred in a total of 709 cases, observed by eight different surgeons. Deneclara says that in only one of 146 cases of hematuria did bleeding last as long as fourteen days, which is of importance in differential diagnosis. Green estimates that in 25 per cent of the cases blood in the urine is the initial symptom and that it occurs in over 70 per cent of the cases at some time during the course of the disease.

Pain usually associates itself with the disease at some time during its course. In Wilman's series of thirty-nine cases, ten cases had pain as their first symptom. The pain may be acute and severe or it may be and more often is a chronic, dull, dragging sensation in the loins. The acute pain manifests itself in renal colic and is due to the passage of clots down the ureter. Therefore, though the hematuria is painless, severe pain may precede or accompany the presence of blood in the urine. The chronic form of renal pain is due to tension on the capsule of the kidney, the parenchyma of the kidney being not sensitive. It is true that carcinoma is the type of tumor which is most frequently accompanied by pain and bleeding. Pain was the initial symptom in 32 per cent. When it is due to kidney tumor it often begins in the night, whereas pain produced by a calculus occurs most frequently by day, on account of muscular exertion dislodging the stone, thereby producing colic.

Sometimes a tumor may constitute the initial symptom of the disease. Frequently it appears as a painless swelling in the flank. In Newman's table of nephrectomies, citing 74 cases, the diagnosis before operation was ovarian growths in eight cases. Such an anomaly as Ridel's lobe is exceedingly difficult to differentiate from right-sided kidney tumor by physical signs. There are certain things which indicate that the swelling is an enlarged kidney. The growth may possess a definite reniform outline. The colon usually lies in front. There is no difference to be made out by percussion, posteriorly between

the spinal column and the mass itself. Also, tumors of the kidney are not affected to any extent by respiration. It is stated that men are more prone to be affected than women by this disease, but it is nevertheless true that the majority of the inoperable cases are to be found in women because the laxity of the abdominal wall in women will permit of a larger growth without distress, and, furthermore, women don't seem to worry so much about blood in the urine as do men. Palpable tumor occurred in sixty-five out of seventy-four cases (Barney).

The three cardinal symptoms of tumor of the kidney develop usually in the following order: Pain, tumor, and hematuria.

Twenty-nine out of seventy-four cases complained of nausea and vomiting. This symptom was frequently but not always associated with renal colic. In case of hypernephroma there is often a dilatation of the superficial blood vessels. Braasch calls attention to a flushing of the face.

Urinary disturbances of some nature may be present. Twenty-one out of seventy-four cases complained of frequency, painful urination, urgency or difficulty. Blood, pus and casts are often found in the urine of these patients. Israel states that soft, white, reddish or pale yellowish clots the size of a maggot or larger are pathognomonic of renal neoplasms.

In palpating abdominal tumors Israel has demonstrated that the best procedure is to have the patient lie on the unaffected side with the thighs flexed. In this position it is said that very small tumors of the kidney that would otherwise escape detection can be palpated. This is the position that a patient with a movable kidney always assumes in order to render it easy for her to demonstrate it to the physician.

Every case complaining of anemia, loss in weight and a general run-down condition in which there can be found no explanation for the symptoms should be carefully examined for a tumor of the kidney.

Cystoscopic examination is of greatest importance. It is practically the only means of localizing the origin of a hemorrhage in the urinary tract. In the large number of cases the bladder picture will be negative. Active

hemorrhage may be observed coming from the ureteral orifice of the affected side or the urine from that ureter may be smoky, cloudy, or even normal in appearance. A large hemato-nephrosis indicates a growth of the pelvis of the kidney near the renal opening.

Catheterization of the ureters is usually effected without difficulty. These specimens are helpful in demonstrating the presence of blood in large quantities, or pus. In one of our cases the ureteral catheter left in dripped blood for hours.

One of the most important steps is to definitely ascertain the condition of the opposite kidney at the time of cystoscopic examination. Renal neoplasms may occasionally be bilateral. It must also be remembered that the anomaly of a single kidney exists in the proportion of one in every four thousand cases, and a single fused kidney or horseshoe kidney occurs once in every 1,600 cases. Prior to cystoscopic examination a combined functional test will, in a general way, show whether or not the elimination is satisfactory. At the time of cystoscopy, however, a differential functional test should be made. It is not always necessary to catheterize the uninvolved side. Unless there are good indications for so doing it should not be performed. With a number six catheter in the ureter of the suspected kidney the exact function of that kidney can be obtained. Using phenol-sulphonephthalein, the normal function is about one per cent a minute. That is, at the end of fifteen minutes a normal kidney should excrete 15 per cent of the dye, and at the end of the test a bladder specimen will give accurately enough the functional activity of the other kidney. An important thing to note is the time required for the dye to appear in the urine from the suspected kidney. Thirty-nine cases in a series of eighty had functional tests made and there was an appreciable decrease in the function in every case (Pleschnes). The function may not always be decreased. In one of our series in which the tumor was of rather large size the dye returned in three minutes and the function of that kidney was only slightly decreased.

In all cases both kidneys, both ureters and the bladder should be x-rayed before the patient is cystoscoped. In some few cases this

will show the presence of a stone and it is also helpful at times in outlining an enlarged kidney.

In cases of suspected tumor pyelography in the great majority of instances will make a definite diagnosis possible. Since bromide of sodium has replaced other media, such as col-largol and thorium, there is practically no danger in this procedure. In twenty-two cases operated upon at the Mayo Clinic in which pyelography was done there was recognizable deformity in seventeen cases. The pelvis of the kidney may be deformed through encroachment of the growth. In this way the calyces may be obliterated. In other cases—and this is said to be typical of renal growth—one or more calyces become elongated due to retraction by the tumor, or owing to tumor necrosis there may be an irregular dilatation of the pelvis. Braasch has called attention to the retraction and consequent dilatation of the upper ureter in certain cases, and further states that an abnormal position of the renal pelvis, when the pelvic outline is extremely lateral or extremely median, is evidence of the tumor. Another point of importance is the decrease or increase in size of the normal ureteropelvic angle. When a tumor occurs in the upper pole the kidney, due to rotation, will make this angle more obtuse, whereas in case of a tumor involving the lower pole rotation will make the angle more acute or obliterate it altogether. In one of our cases the angle was not only obliterated, but the ureter had become displaced inward and lay over the spinal column. Alcock states that an elongation of the calyces in the cortex is more especially seen in hypernephroma. The true pelvis of the kidney is usually not enlarged to a noticeable extent. McGowan says that an elongated calyx is not of itself pathological, as they may occur in the normal kidney, but a calyx elongated by a tumor loses its characteristic shape and the normal contour of the minor calyces. He makes the statement that drawn out calyces and an elongated and deformed pelvis in the absence of contrary cystoscopic information is due to malignant renal growth. Any other mass existing in the area of the kidney can be diagnosed an extra-renal tumor where the pyelogram shows a normal pelvis and calyces.

The diagnosis of such a condition as essential hematuria depends almost wholly on pyelography.

Prognosis.—Some observers contend that early removal of cancer of the kidney should offer as good prognosis as the early removal of cancer involving any other portion of the body does. The primary mortality of operation has been reduced very considerably in recent years, from 60 per cent and above to 23 per cent. Braasch in reporting a series of eighty-three malignant tumors of the kidney states that there were sixty-one nephrectomies (seven of these died in the hospital), a primary mortality of 11 per cent.

Braasch's statistics compiled from fifty-one cases that were traced after leaving the hospital are as follows: Seventeen were alive more than one year, twelve were alive after three years, four were alive after five years or more, and one was alive after eight years. The duration of symptoms prior to operation in those who were alive three years or more after nephrectomy was 1.6 years. Those who lived less than three years after operation had had symptoms for 2.8 years before the kidney was removed. Thirty-three per cent of the patients had a three-year cure and 10 per cent a five-year cure. Judd reports 39.8 per cent of five year cures in cancer of the breast. Wertheim reports 42.4 per cent for cancer of the uterus. When these percentages are compared with the percentage of five year cures in malignant disease of the kidney we are impressed with the importance of early diagnosis in the latter condition. Out of eighty-three operations for malignant kidney at the Mayo Clinic up to July 1, 1912, twenty-two were only exploratory in nature. There were also twenty-one that were diagnosed clinically but were considered inoperable, so that there was one in five in which the condition was obviously hopeless from a clinical standpoint.

According to Sherrill, duration of kidney tumors is from six months to six years. In hypernephroma the duration is said to be from fifteen weeks to eight years.

This condition depends wholly upon surgery for its cure. The radical removal of the affected kidney, including the adjacent lymph glands and a considerable portion of

the ureter is essential. Even when this is carried out the prognosis, as has been shown, is bad unless the disease is in its early stages. The lumbar nephrectomy is the operation of choice when the growth is sufficiently small to be removed through such an incision. In case of larger tumors the transperitoneal route is the alternative. Senn stated that the operative mortality of lumbar nephrectomy is only half that of the abdominal nephrectomy. Present day methods, however, have decreased the mortality of the transperitoneal operation.

CONCLUSIONS.

1. It would seem that the etiology of tumors of the kidney depends secondarily upon such factors as trauma and calculus or other agencies producing chronic irritation which are at present beyond our knowledge, and primarily upon the power of cells of all living tissue to revert to their primitive function and reproduce that tissue against the biological laws which control the growth of the body as well as of its parts.

2. Sarcoma is the type of malignancy in infancy and childhood. Young adult life is particularly free of renal growths. During the years of maturity tumors of the kidney show a greater incidence again and hypernephroma constitutes 70 per cent and over. Cancer is the malignant tumor of later life.

3. The pathology of tumors, especially of those involving the kidney, is at present in such a confused state that a definite classification is almost impossible. Both diagnosticians and surgeons are awaiting for an advance in pathology.

4. The important point in malignancy of the kidney is that it metastasises very early and differing from malignancy, especially carcinoma, elsewhere it selects the venous channel as a route for its extension. Lymphatic involvement occurs, but in all probability after the growth has invaded the venous system. Therefore, it is not much consolation to find that the glands which were removed with the kidney are not involved.

5. At present the only hope for a brighter future in this disease is an earlier diagnosis.

6. Pyelography offers the most efficient means at our command for detecting renal growths in their primary stages.

7. It is a noticeable fact that operative technique has made remarkable advances, reducing the primary death rate from 60 per cent and over to 11 per cent, whereas the percentage of five-year cures remains from eight to ten per cent. This would seem to stress the fact that surgery must now await a similar improvement in the clinical and pathological branches of medicine.

Intensive and persistent radiation with the Coolidge tube, at least once a month for six months, is about the best protection against recurrence. In one of our cases herewith reported (Case 1) a previously deemed inoperable case was in two years of persistent radiation improved so much that one of us (W. D. H.) was beguiled into undertaking the removal of the tumor. The youth had gained thirty-four pounds, the tumor had decreased until it was relatively small. The limit of radiation so far as skin tolerance was concerned had been reached. The operation instead of being easy was indescribably difficult. The leatherization of the growth was extreme. The fibrous adhesions were unyielding. Enucleation was all but impossible, rendering the operation most desperate, resulting in shock that was fatal. Three other nephrectomies for hypernephroma have been performed in the last year. All recovered. The histories of all four are appended.

Case No. 1.—C. C. W., male, age 18, single. Family history, tuberculosis on maternal side. Previous history, was operated on at St. Thomas Hospital February 1, 1917, for appendicitis. An acute distended retrocecal appendix was found. Uneventful recovery. He left the hospital feeling well February 20, 1917. Three weeks later contracted pneumonia. Was ill three weeks and made good recovery. Following this he was well until March 4, 1918, when he came again for treatment.

History of present illness: In June, 1917, was taken with a dull, aching pain in upper left abdomen. Pain was constant, at times sharp pains radiating to left hip and occasionally in the opposite side occurred. There was no radiation to the back. Doubling up gave him some relief. During a bad spell he would be confined to the bed for two or three days, following which he complained of soreness for two or three days in the upper left abdomen.

He never took morphin for relief. He states that he has averaged spells of pain such as described about once every three weeks. Attacks are becoming more severe and frequent. Recently required morphin for relief. With severe spells has had some fever. Last attack ten days ago, which laid him up in bed one week. No vesical symptoms at any time. Urine somewhat cloudy, but says he never passed blood, pus or gravel in the urine. He has lost no weight. He says that he can remember having mild attacks of soreness and pain in left upper abdomen during the early part of 1916. Examination showed a mass in the left upper quadrant, somewhat nodular. Urinalysis: Faint trace of albumin and a few pus cells, otherwise negative. Diagnosis: Hypernephroma, left kidney, operation three days later, at which a hard non-cystic tumor, size of a large cantaloupe, irregular, and nodular, was found involving the left kidney. Condition was obviously inoperable, small amount of tissue removed for diagnosis and the wound closed. Following his exploration he was given x-ray treatment. He received in all fourteen treatments with Coolidge tube. Each treatment consisted of 40 to 45 milliamperes minutes, spark gap 9 inches, and altogether 45 areas were treated.

August 26, 1919, patient returned for examination. He was found to be much improved, stated that he had gained 34 pounds in weight during the first six months of the treatment, felt perfectly well and had gone back to work. At this time no tumor could be demonstrated. August 27, 1919, he was operated on and the left kidney was removed. This was 15 months and 20 days after the exploration. The tumor was found considerably reduced in size and buried in a mass of dense fibrous tissue adherent to all adjacent structures, thus making the operation very difficult. Death occurred twenty-one hours later from delayed shock.

Case No. 2.—Mrs. J. D., female, age 53, married. Family history negative. Previous history: Since birth of first child twenty-five years ago she has had a certain amount of trouble. She was lacerated at the time. Fifteen years ago trouble became worse and consisted mostly of excessive menstruation. This gradually became worse, and March 1,

1918, had a spell of bleeding. At this time she was in bed six weeks. She said that she almost bled to death. Had had similar bleeding spells every three weeks more or less since. September, 1918, had another very bad bleeding spells. She feels weak and has lost 46 pounds in weight, and complains of bearing down sensation in the pelvis. In July, 1919, she was taken with another bleeding spell and at this time noticed a mass in upper left quadrant of the abdomen. Mass has been gradually growing larger since. Complains of diarrhea during the hot weather. Five or six stools per days. Diarrhea disappears during the winter. Recently she has been troubled with nausea and vomiting, sour stomach and burning in the epigastrium with no relation to meals. She is very nervous and complains of pain under the shoulder blades. Says she is extremely nervous and sometimes has smothering and strangling spells. Her last spell of bleeding was August 4, 1919. She has never noticed blood in the urine. There was a large mass palpable and visible in the left loin. Tumor was smooth, free and movable, and presented a notch. Urinalysis, negative, except an occasional pus cell. Patient was very weak and returned home. She returned, however, November 4, 1919. Cystoscopic examination at this time showed a negative urine from both kidneys. Original x-ray plate was negative for stone. Phenolsulphonephthalein test dye returned from left side in 22 minutes, from the right side in 11 minutes. Pyelogram showed a very large pelvis, no calyces present, a filling defect separating the pelvis in two large areas three inches apart. Ureter lay over the spinal column. Diagnosis: Kidney tumor. Probably a hypernephroma. She was operated on November 8, 1919. Tumor of the left kidney was found, the size of a grapefruit. Nephrectomy.

Case No. 3.—Male, age 45, married. Family history negative. Previous history: For the past three or four years he has passed blood and mucus in his stools. Says he had passed double handfuls at times of mucus and blood. He was told that he had ulcerated bowels. But for the past year and a half his stools had been free from blood and mucus. Four months ago, having some pain in the up-

per left abdomen, he consulted the doctor. A mass was discovered in the left loin. The tumor was not tender at this time. Mass continued to grow larger. Six weeks ago he had a spell of severe aching pain in the left loin, radiating through to his left back down into badder and testicles. Was nauseated and vomited and had to have morphin for relief. He noticed blood in the urine following this spell. He remained in bed four weeks. Blood persisted in the urine since the attack. Has taken six or seven doses of morphin for pain and has been confined to his bed most of the time except one week for the past month and a half. Last spell of pain was yesterday. Had to have morphine. He has no pain or burning on urination. Passes his urine about three times during the day and has to get up two or three times during the night. Appetite and digestion good. No fever or sweats. Has a cough and spits up lots of mucus. Says he takes cold easily. During the last four months he has lost five pounds and lots of strength. Patient appears thin and weak. Examination, large mass palpable in the left loin. Urine contains some blood and pus. Cystoscopic examination: Negative bladder, clear urine spurting normally from the right ureter, good spurts from the left side, but urine from that side slightly cloudy. Left ureter catheterized. Functional test thalein appeared through left (enlarged) kidney four minutes after injection. Ten per cent of the dye was recovered in 15 minutes from the left side. Bladder specimen at the end of fifteen minutes contained 20 per cent of the dye. Pyelogram showed filling defect about the middle of the pelvis, absence of normal calyces, obliteration of the ureteropelvic angle, ureter lying over the spinal column. Original x-ray plate negative for stones. Diagnosis: Tumor of the kidney. He was operated on March 13, 1920, left nephrectomy.

Case No. 4.—Mr. R. M. S., school professor. Previous diseases and injuries: None serious, past history negative. Former operations, none. Chief complaint: Hematuria, sudden onset, slight pain at times right lower quadrant. General description of patient: Robust, general good health, slightly gray.

Clinical history: Patient entirely well up until Wednesday, when he noticed much

blood in the urine. Called in a doctor and he noted some tumor in right side and advised patient to come here. Patient has had more or less blood in urine since, with but very little other discomfort, though does have some little fullness and pain in lower right side, no especial frequency or urination. No other trouble noted and general health good. No loss of weight noted. Physical examination shows movable tumor on respiration (not large) in right side. Nothing else abnormal noted.

Cystoscopic examination revealed normal bladder, normal urine spurting from the left ureter hemorrhagic urine spurting from the right ureter, both ureters were catheterized; there was normal urine from the left side and urine from the right side was very bloody. Catheter was left in the right side for eighteen hours, and it contained to drain bloody urine as long as it was left in.

DISCUSSION.

Dr. Jere L. Crook, Jackson: The paper which we have just heard is of great importance not only because of its intrinsic merit, but because of the emphasis which it placed on correct diagnosis. A few months ago I was called in consultation to see a patient who was being treated for malarial hematuria. His bladder was filled with blood clots which had to be removed by washing out through a catheter. He was brought to the sanatorium and a careful examination revealed a tumor of the left kidney. Cystoscopic examination with ureteral catheterization of both kidneys showed the right kidney normal and the left kidney, which was greatly enlarged, diseased, with the urine from that side containing both pus and blood. A large nephroma was removed and the patient made a good recovery from the operation, but died from metastasis in ribs and spine a little less than a year after the operation. This case shows the importance of an early diagnosis, for upon that will depend the success of the operation and the life of the patient. We have at our command in the cystoscope an exact method of diagnosing the condition of both the bladder and kidneys, and cases of this nature should be referred early to those who are skilled in the use of this instrument. The hope of curing cancer in the kidney, as in all other locations, is in its early recognition and prompt and thorough removal.

Dr. H. L. Douglass (closing): In regard to diagnosing this condition, it is interesting to note that a few cases in the literature have been operated on for varicocele which was secondary to renal neoplasm, the kidney itself escaping de-

tection. In one reported case, a patient presented himself with chronic priapism, due to a small tumor situated at the base of the corpus cavernosum. This tumor was removed and microscopical examination showed it to be a hypernephroma (metastatic). Kronlein sometime ago said that in a series of his cases he was unable to arrive at a definite diagnosis because of insufficient signs and symptoms. One case of well advanced kidney tumor is on record as having presented himself at the hospital with practically no symptoms of renal disturbance whatever, simply stating that he felt "all in." Since the signs and symptoms of tumor of the kidney, especially in the early cases, may depart so markedly from the classical signs of pain, tumor and hematuria, it is obviously necessary to thoroughly investigate any condition which is obscure or which gives rise to even the slightest urinary disturbance.

THE TREATMENT OF CERVICAL CARCINOMA AND UTERINE FIBROMA WITH RADIO-ACTIVE RAYS.*

By E. T. Newell, M. D., F. A. C. S.,
Chattanooga.

The radio-active substances referred to in the title of this paper are radium element and its salts, and the hard Roentgen rays of the Coolidge tube. So much has been written of the operative technique and its perfection in uterine carcinoma and fibroma that I fear I could add but little, if anything, to the subject. As is the case with many operative procedures, in other conditions, the end results in these conditions are not wholly satisfactory. Because of this fact we have endeavored for the past two and one-half years to supplant the operative procedure in certain definite cases of uterine carcinoma and fibroma with radium applications alone or in conjunction with x-ray therapy.

Howard Kelly in his operative gynecology, 1906, under the caption, "Treatment of Inoperable Cases, Cervical Carcinoma," makes the following statement: "Any decided operative interference designed to prolong the life in a hopeless case is utterly unjustifiable." At that time radium therapy was not in use for this condition. Dr. Kelly, however, mentions

the use of x-rays in such cases. However, x-ray therapy was then in its very infancy as compared with the improved technique of the present day. It is not with regard to the hopelessly inoperable cases of uterine carcinoma or extensively complicated fibroid uteri that I wish to bring to your attention the use of radium and x-rays, but a much wider field of application of these most efficacious agents.

In supposed uterine carcinoma the first consideration would of necessity be the absolute diagnosis of malignancy. Following this, the stage to which the cancer has progressed, not necessarily inoperable, for radium is applicable under all conditions and often indicated even in the earliest stages of the disease. This being the case, the question arises is the condition of such slight involvement that operative interference is preferred and to be selected as the sole and best treatment to effect the cure? I think it is justly conceded that the advanced cases, those involving the vaginal wall, bladder and rectum parametrium, broad ligaments, all fixed uteri, as well as those totally inoperable, sloughing, craterous, cachectic, foul smelling emaciating cases are better treated with radium than by any other means or procedure at our hands at the present time.

However, the important question before the profession today, to be ascertained if possible, is should we precede all radical operations for carcinoma of the uterus whether done early or late with the application of radium? And should we follow up all cases so operated with radium therapy?

It is the custom at our clinic to section all suspected cases or extremely early cases and apply radium immediately that the section is taken. If the frozen section suggests malignancy the radium application is continued for the usual time, otherwise it is removed. If the case is malignant, I think the uterus should be removed in ten days to two weeks following the application of radium. It has been definitely established that cutting into a cancer frequently transplants the malignant cells. The cells are broken loose, getting into the lymph channels or blood stream, and metastasis follows. Frequently the malignancy grows rapidly at the site of the trauma

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

produced by the removal of the section. If the radium is immediately applied it should destroy the cancer cells in the wound and vicinity and prevent their transplantation. If it is good treatment, it should be good prophylaxis. In regard to operating on these early cases following the initial radium treatment, if the case is a good operative risk, an early one confined entirely to the cervix as far as can be ascertained, we think it best to remove it. The radium should have killed all the cancer cells within three and a half to four centimeters of it, and those further out are stunned, so to speak, and if cut through will not metastasise. By completely removing the affected organ you entirely eradicate the diseased organ and the possibility of its recurrence, and your results if not attended with primary mortality should show a high percentage of five-year cures. However, if your patients are not good operable risks and likely to be attended with high primary operable mortality, the treatment of the condition with radium alone in the cervix, in the vagina and over the abdomen, with or without x-ray therapy, is the method of selection.

Dr. Curtis F. Burnham, in a radium symposium on cancer at the recent New York meeting of the Clinical Congress of Surgeons, stated that he usually removed the uterus in the early cases of cervical carcinoma, but that many of them could be cured with radium applications. My interpretation of his remarks were that in cervical carcinoma where there were complications or where the case was not a good operable risk, radium was the treatment of selection.

In regard to the use of radium in the inoperable cases of uterine carcinoma, those where you cannot completely enucleate the mass, and cut wide of all the microscopic evidence of the disease, and where recurrence so surely follows operative interference, I can offer no better evidence of the splendid results of radium in this distressing class of cases than to quote from an article on this subject by Kelly and Burnham in the *A. M. A.*, November, 1915, as follows: "Only 25 per cent of all operations in carcinoma of the uterus, operable and inoperable, fail to show recurrence in five years. One in four cure." While radium in their hands in inoperable

carcinoma of the cervix, where there was not general metastases, has cured 25 per cent of these cases, one in four cure. This is truly a remarkable showing, and most encouraging to that class of poor, wretched, suffering, heretofore hopelessly afflicted women. They have something that gives them a ray of hope of ultimate cure, but above all, they get temporary relief of pain, of the foul smelling discharges, of the hemorrhages, and with it all there is no primary mortality. I have yet to see a case that did not show some temporary improvement and that did not gain in weight and strength following the application of radium, unless the case was positively moribund when seen and should not have had radium applied.

The reason of the 20 or 25 per cent cures in inoperable cases by the use of radium is quite logical when you consider that the real prognosis in all cervical carcinoma cases is whether there is involvement (further out and higher up). This cannot be definitely determined at the present time by any known means until the abdomen is opened, dissection done and microscopical examination of lymph nodes made. If metastasis has taken place, operative procedure is not going to relieve the condition, for even if you remove all enlarged and apparently involved microscopic lymphatic glands, you will most certainly leave smaller and microscopically involved glands, and recurrence will take place later, with fatal termination, even should you not lose your patient from the extensive and prolonged operation. (Wertheim.)

It is a fact long recognized that small and recent uterine carcinoma of the cervix cases frequently have metastases in the parametric, pelvic and abdominal lymph glands, and this fact reduces our general operative successes to 25 per cent. Many large extensive cervical carcinomas of long standing often have no metastases in the pelvis or abdomen, and with few, if any, lymph nodes involved in the parametrium. These cases are then in a measure local. They are too extensive for operative procedure, but can be reached and the involved tissue cleared up by the application of radium. It is in this class of cases that we get the 20 to 25 per cent of cures from radium therapy. Of course, if

general metastasis has taken place, radium will fail as certainly as would incomplete operation on this or on a purely local malignant condition. The prognosis in cervical carcinoma is and always will be uncertain in any given case until radium has been applied and the results ascertained.

In addition to the metastasis as a factor in the prognosis, I may say the individual resistance to malignant cell growth plays an important part in recurrence, as has been so often brought to our attention by many workers in this particular field. These cells may become encapsulated and remain shut up for years without multiplying or manifesting themselves in any manner. It is also stated by radiologists that some malignant cells, on the other hand, show decided resistance to radio-active substances, not being destroyed by their action. This, however, is an exception rather than the rule.

We have treated in the past two years and ten months twenty-four cases of cervical and vaginal carcinoma with radium alone or sup-
planted in some cases with x-ray therapy. Eight are dead, present mortality 33 1-3 per cent. With the exception of three cases, all of the series were inoperable at the time they presented themselves for treatment. This gives 87.5 per cent of inoperable cases when seen, an unusually high percentage, due most probably to the fact that most of them were referred cases, having either been operated on previously or found to be too far advanced for operation when seen by their physicians. John G. Clark reported (*Journal A. M. A.*, 1919) that he had only operated on 15 per cent of cases of uterine carcinoma that had come to him for operation at that time, or 85 per cent inoperable cases.

One of our three operable cases refused operation, preferring radium treatment alone, and the other two on account of their very poor general condition were advised to wait until their conditions improved, following the application of radium, and then submit to operation. All of these cases are microscopically and subjectively well at this time, and we are unable to get their consent to now be operated upon. It has been two years and nine months since the first case was seen, ten months in the second instance and eight

months in the third. It will probably take five years to tell whether it was wise to have applied radium primarily in these cases instead of immediate operation, or whether they should not have later submitted to operation. On the other hand, it may be said, "Might not they have had metastases higher up, and complete operation have failed as well?" This phase of the question is yet far from being satisfactorily settled. Personally, I do not believe that operation in these early apparently involved cases, should be discarded for radium therapy alone. This is a rich field for co-operation and team work by the surgeon, radio-therapist and pathologist. We are working along these lines, but the work is difficult, the opportunities limited, and the time required for accurate data (five years) long.

The remaining twenty-one cases are representative of some of the worst and most pitiable conditions that it is possible to realize that uterine carcinoma can progress to. Two cases of the series received only one treatment, and should not be included in it. They were given radium, as they came from such distances, and I only hoped to check the hemorrhage and stop the odor temporarily. Both of these died in one or two months after being seen. Of the remaining nineteen cases, six have died, leaving thirteen inoperable cases under treatment. One is of two years and ten months standing and writes that she is subjectively well, although I have not seen her for a year. Three are of two years standing. Two of these cases are apparently well of the disease. One, however, is relapsing and no doubt will not recover. Of the remaining nine cases, of less than two years duration, three are either stationary or getting worse, leaving six improved cases. This gives nine of the twenty-one inoperable cases living and apparently cured from six months to two years and ten months after treatment was begun, a percentage of 42.8. As the majority of these cases are early ones, only one being over halfway to the five-year limit, the ultimate outcome could hardly be expected to be equal to the 25 per cent success attained in the cases reported by Kelly and Burnham. Still the greater percentage of relapses is during the first year. I realize that these

statistics are of no real value, but give them to you, at this time, to show prolongation of life by radium treatment, rather than cure. These cases received from three to twelve treatments each of radium, according to the results obtained. When it was determined that radium was not improving the patient, its use was withdrawn and the patients or family frankly told it would be useless to proceed further with it.

The average time of application of radium was ten hours, giving approximately 600 milligram hours at each sitting. The second treatment, in the average inoperable case, was given in from two to three weeks. In some of the extensive cases, the second treatment was repeated in ten days and in a few cases in two or three days. The third treatment was given in four to six weeks and successive treatments in two to four months, as the condition of the patient suggested. All cases are requested to report every four months for examination, and even though apparently well, are given a 500 to 600 milligram hour radiation at the site last treated or the part thought to be most likely affected. These cases will be treated every four to six months until the five year limit is reached. The number that will reach this goal will probably be only a small straggling few of the original twenty-one starters, but if only two or three of these hopelessly inoperable cases pass under the wire subjectively and objectively cured, we will feel that radium has done its work well.

Radium also has an important use in other uterine conditions, particularly fibroids. I shall not speak of its use in the menorrhagias and metorrhagias in both young and older women other than to say in these cases, after everything has failed, it is almost a specific. As previously stated, it checks uterine hemorrhage, and as this is one of the most distressing conditions in uterine fibroma, it is here that radium does its best work. I shall not go into the chemistry, physics or biological effects of radium further than to say that it has a specific action on blood vessels and blood vascular tissue, occluding them when brought into contact or close proximity. It checks the hemorrhages of uterine fibroids not alone by its action upon the local blood

vascular system, but by its effect on the unripened and ripened graffian follicles of the ovaries as well. It also affects the stroma of the myoma, reducing all such tumors in size and if repeatedly applied in sufficient and appropriate doses, shrinks the pathological uterus to its normal size. When this latter condition is accomplished complete suppression of menstruation is usually brought about. The amenorrhea is easily and quickly and definitely established, but the reduction of the tumor to normal is often a slow process, sometimes requiring a year or more for its completion. This process of reduction of the tumor often goes on gradually for months after the last application of radium. The physician and patient alike are quite often surprised to find that this progressive atrophy of the organ has taken place, when an examination is made months after the treatment has been stopped.

Before the advent of radium therapy in uterine fibroma the beneficial effects of x-rays in checking the hemorrhage in this condition was quite well established, and was frequently used as a therapeutic agent to check hemorrhage. The splendid work of some of our roentgenologists, notably Miss K. Kane, of Chicago, in this particular field, is worthy of commendation. She reports in the *Journal of Roentgenology*, July, 1919, the treatment of twenty-five cases of uterine fibroids, of all sizes, with deep x-ray therapy with success in each case. She further claims to be able to reduce the tumor to normal without seriously affecting the menstrual functions. There are recorded cases where the fibroid has been reduced by this treatment, pregnancy taking place later, the mother giving birth to a normal child.

At our clinic we use radium in fibroid cases within the uterus and if the patient is under 35 years, endeavor to preserve the menstrual function. If 40 years or over, we use radium in the uterus and make use of the deep x-ray therapy over the abdomen, bombarding the tumor with radio-active rays both from within and without. We are convinced that in most cases this procedure will stop the hemorrhage and cause shrinkage of the tumor. We have not used radium in the massive fibroids, these filling the entire abdomen, pre-

ferring to operate if the condition of the patient permits. If the condition of the patient is not good, from the severe hemorrhages that have produced a high grade of anemia, we prefer to use radium to check the hemorrhage, and thereby put the patient in a position where she will be a good operative risk. If there should be other complications, such as kidney involvement, heart or lung condition, we would not select operation in these cases, but would rely solely on radium and x-ray therapy. We have not yet encountered a case where radium failed to check the hemorrhage and reduced the size of the tumor to a limited extent, unless it was a fibroid of the submucous type or a calcified fibroid. The latter condition can usually be diagnosed by a careful bimannual examination, but for fear of possible error in these cases, we made a radiogram of nearly all fibroids of the uterus before using radium on them. Radium will not affect a calcified fibroid.

Our success in the treatment of fibro-myomas of moderate size with radium has been so universally successful that we think all uncomplicated cases should be subjected to radium therapy before attempting the more radical procedures of myomectomy or hysterectomy. Where there is a complication of hydro-salpinx, pyo-salpinx, ovarian cyst, appendicitis, cholecystitis, calcified fibroid or malignancy complicating the fibroid, operation should be done. I agree with Kelly that every case of simple uncomplicated fibroid operated on with primary mortality, that has not previously **failed** to respond to radium or x-ray therapy, is in itself an indictment of poor operative judgment. In the limited number of cases in which we have used this treatment (ten), there has been no morbidity or mortality, and in every case the hemorrhages have stopped, the pain has been relieved and the tumor either partially or completely decreased in size, the patients subjectively well. We have not treated all the cases of fibroid of the uterus that have come to us with radium, having elected operation in a certain few of them. The greatest trouble that we have encountered with the radium cases is that they improve so rapidly, and have such a feeling of well being, that many of them refuse to return for final treatment

and inspection. I shall not give to you in detail the clinical history and the treatment of the cases of uterine cervical carcinoma, and uterine fibroma, subjected to radium and x-ray therapy, for while many of them would be most interesting and striking, it would serve no real purpose, and make too long a paper that is presented with the idea of bringing to the attention of this association some of the more recent potent features, and the future possibilities, of radio-active substances in the treatment of these two most important and absorbing subjects.

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DISCUSSION OF DR. NEWELL'S PAPER.

Dr. John M. Maury, Memphis: Mr. President and Gentlemen: I do not think as important a paper as this should go without discussion, even though the remarks I have to make take issue to a mild degree with some of the statements made by Dr. Newell.

It must always be remembered in estimating results of the treatment of carcinoma of the cervix with radium that up until the present time all cases treated were in the inoperable stage—that is, they were so far advanced that no operation could be done with the slightest prospect of benefit. It is only in the near past that early cases of the disease have been subjected to radiation, but personally, I do not think this is based upon sound reasoning. Surely if a cure is to be expected when the disease is widespread and out in the structures beyond the cervix, it is but natural to expect more cures from the treatment of the disease when it is still confined to the cervical structures. Two years ago when in Philadelphia I asked Dr. John G. Clark if he would let me know when he was going to do a Wertheim operation. His reply was that a Wertheim operation was almost never done at the

present time in his clinic. You may remember that he was one of the originators of the so-called Wertheim operation. In other places I notice a tendency to use radium in the earlier cases.

I believe that advocating operation either prior or subsequent to radiation will simply result in increasing one's mortality without increasing the number of cures.

Dr. William Sheddan, Columbia: The discussion of Dr. Newell's paper on radium and its uses on uterine conditions, uterine carcinoma, uterine fibroids, leads me to inquire why it is not used on carcinoma of the stomach, pancreas and other organs that are thus affected, which conditions are operable?

Dr. E. T. Newell (closing) Mr. President and Gentlemen: The subject of radium in the treatment of all diseased and malignant conditions is a wide subject, and I shall not attempt in the discussion to say anything further than as it applies to the treatment of the uterine cervical carcinoma, and fibroma of the uterus. It is quite certain that in the treatment of this class of cases the application of radium has proven very beneficial in a large percentage of them all. In speaking of the treatment of the uterine cervix, in cases of malignant disease I did not mean to go into the treatment of carcinoma in general or where it appears in any of the other organs of the body. Although in cases of cancer of the stomach, about which Dr. Sheddan asked. Dr. Will Mayo, in his presidential address, Clinical Congress of Surgeons, stated that they were using radium at his clinic with beneficial effects in the treatment of cancer of stomach, but they were very careful in its use when applied this way. I have had no experience along this particular line. Radium when used in any cancerous condition will prove beneficial in most instances. In cases of fibroma we have used radium, not only in the small uteri, but in some of the larger tumors, and the results have been really marvelous. The x-ray will do somewhat the same work when judiciously applied, but it is not so effective. In regard to the use of radium in these cases I have tried to be very conservative, and I do not think we should use a radio-active substance to the exclusion of proven surgical procedure. There is always a question where you have some cervical involvement and you have used radium as to whether or not you will have a recurrence later. There is always the possibility that you may have a recurrence, and that it may have been the proper procedure to have removed the organ after the macroscopic cure. In regard to what the doctor said about a clinical cure in the use of radium in the treatment of fibroids of the uterus if it has undergone malignant degeneration: The report that was made in the Journal of the American Medical Association showed that there was only six-tenths of one per cent that had

undergone malignancy. So that is not to be considered. You can often determine the malignancy by an examination of the scrapings from the uterus in making your original diagnosis. Dr. Ransohoff, of Cincinnati reports that he uses 75 milligrams of radium in the treatment of their cases. Dr. C. Jeff Miller, of New Orleans, used 75 to 100 milligrams, and stated that he used this amount several times during the first week. Another radio-therapist applied 200 milligrams. Henry Schmitz of Chicago stated that he never used more than fifty milligrams of radium, but used it oftener than most of us do, doing all of his work in the first seven to fourteen days. So there is the practical equation, showing how the different radio-therapists apply radium. In the Memorial Hospital, where they have probably more radium than anywhere else in the country, they use principally radium emanations. While they have an enormous amount of radium, they often use no more radium emanations than the doctor referred to in Chicago. I saw the younger Keys use radium in a cancerous prostate at the Memorial Hospital in New York. He opened the bladder and inserted a half a dozen emanation tubes, the smaller ones about five milligrams or five millicuries each, and left them there for good, to be passed out during urination. So in the question of dose there is a personal equation. I am sorry that I cannot take more time in the discussion of this subject and go out into a broader field of discussion, as there is plenty of room for it, but this paper is confined alone to cervical carcinoma and uterine fibromas, therefore I shall not attempt to cover any of the other fields in which radium is so useful a curative agent.

PYELITIS IN INFANCY AND CHILDHOOD.

By R. H. Perry, M. D.,
Nashville.

Inflammation of the renal pelvis, while hardly classed as one of the common diseases of infants and small children is, on account of the frequency with which it is overlooked in spite of pediatricists constantly calling attention to this condition, together with the severity of the symptoms it produces, a subject deserving especial study on the part of those who have to deal with this class of patients. Unrecognized pyelitis gives rise to prolonged fever and profound constitutional disturbances, while if quickly recognized and proper

treatment instituted the course and termination of the disease may be materially and favorably affected.

During the past four years thirty infants and small children with pyelitis have come under my observation. The youngest infant in the series was 10 months old, and the oldest a boy of 10 years, the average age being 2 years and 4 months. Of the thirty cases, twenty-eight were females. Infants very much younger than any of my cases may develop pyelitis. Thus R. M. Smith,¹ Boston, reports a case in a boy baby two days old, and Helmholz² reports three cases in newborn boy babies. After the sixth month the majority of cases occur in females, as is shown in the above series of cases.

While principally of academic interest the main point of contention among pediatricists is how the infection, usually the colon bacillus, gains entrance to the pelvis of the kidney. There are those who would have us believe that colon bacilli from feces that have soiled the vulva enter through the urethra into the bladder, travel up the ureters and set up an inflammation in the pelvis of the kidney. This, they explain, accounts for the occurrence of the majority of cases in girls.

Recently the so-called hematogenous theory seems to be gaining favor. According to this theory the colon bacilli gain entrance to the general circulation from the intestines, or possibly the vagina, urethra, or bladder. These bacilli are excreted through the kidney, and in case the patient has a low resistance they find the pelvis of the kidney a fertile soil for their development. During acute infections—as typhoid, diarrhoea, influenza, etc.—the development of pyelitis is favored by concentration of the bacilli in the pelvis of the kidney, or in the blood. Recent work by Smith,³ Cabot, and Crabtree⁴ seem to substantiate this theory.

There is still another theory of infection from the intestines by the lymphatics, but according to Dunn⁵ this is not supported by any definite evidence. Neither is the theory of infection by the peri-ureteral lymphatics plausible, as the flow of lymph is from the kidney downward.

The hematogenous theory, it seems to me, is the most plausible so far advanced.

Two of my cases occurred in the same family. Dr. Wm. Bailey, of Nashville, has had six cases of pyelitis in one family during the past few years. The majority of cases occur in the spring and summer. Thus eight of my cases began in the spring, sixteen in the summer, and six in the fall and winter. The occurrence of so many cases in the spring and summer is due to the close association between diarrhoeal disease and pyelitis. Thus thirteen of my cases were preceded by diarrhoea and seven were previously constipated. Wood thinks constipation is common as a predisposing cause.

Pyelitis may be due to some local condition as stone or congenital malformation; or it may occur during the course of some acute disease, as typhoid, influenza, diarrhoeal diseases, or, as has been said, cases may occur with constipation. Of my thirty cases, four occurred during typhoid, three during influenza, one was associated with acidosis, one with acute intestinal intoxication, and one with a gonorrhoeal vulvo-vaginitis. Among the predisposing causes of pyelitis may be mentioned retention of urine, cold, hyperaemia, and diminished diuresis. Cases due to local pathology are usually unilateral; otherwise the disease generally affects both kidneys.

In eighteen of the cases not complicating typhoid, influenza, etc., where the urine was examined, the *B. coli* was found in pure cultures in all but one case, and that in a child who had had the disease over a long period of time. In this case the urine showed a mixed infection.

Pathologically there are two types of pyelitis. First, there may be a simple catarrhal inflammation of the bladder and pelvis of the kidney, or second, multiple abscesses may develop in the cortex. Sometimes the abscesses radiate in fine lines toward the pelvis of the kidney. Thompson⁷ believes that chronic interstitial nephritis may result from the slow infection of the kidney by the colon bacillus. However, of seventy-three cases of chronic nephritis in infancy and childhood which Heubner⁸ was able to collect from his records, only six were due to pyelocystitis, in his opinion. Grulee suggests that some cases of py-

elitis of pregnancy may be latent cases of pyelitis of infancy and childhood.

Pyelitis is characterized by an abrupt onset. An infant or young child previously well suddenly develops a temperature of 104 to 105 degrees. Rigors may occur. Thus in my thirty cases three had chills at the onset, and one had a convulsion. Still⁹ reports three convulsions out of twenty-eight cases. The little patients become very miserable and restless, but at times may be almost comatose. Extreme pallor develops in most cases, and occasionally jaundice or an erythematous eruption occurs.

Two types of temperature are ordinarily observed. In the one the temperature remains high, resembling typhoid, while in the other there are marked remissions, the temperature being septic in type.

In many of these cases there may be nothing in the patient's condition to call attention to the kidney as the source of the trouble. Bentley,¹⁰ classifying pyelitis according to the predominating symptoms, divides the disease into five types, viz.:

(1) Those with symptoms of some general feverish disorder, without any indication that one general system is affected. Eleven of my cases come in this group.

(2) Those with cerebral symptoms predominating.¹¹ Two of my cases simulated meningitis.

(3) Those with pulmonary symptoms predominating. None of my cases could be classed in this group.

(4) Those with abdominal pain. One girl, age 7, had symptoms simulating appendicitis.

(5) Cases where frequent and painful micturition call attention to the disease. Six of my cases fall in this category.

Vomiting was a prominent symptom in seven of the thirty cases, while the pallor in eight cases was extreme. The blood in eight cases examined average 20,000 leucocytes, with an increase in the polynuclear cells.

The average duration of the acute symptoms is three to eight weeks, according to Holt.¹² Smith¹³ thinks so-called "relapses" are probably due to a secondary invasion of the kidney. Kerley¹⁴ says a case should not be considered cured under six months, even if there is no return of the fever. Abt¹⁵ has

followed one case for ten years. This child has frequent remissions with every fresh cold or over-exertion. Often he thinks the disease persists to the fourth or fifth year. Of my thirty cases, one died primarily from acidosis, while twenty, I consider, were cured as there was no evidence of pus after six months without treatment, although the treatment extended in some cases many months. One case was apparently not influenced by treatment, six cases passed from observation but were improved, and two cases are still being treated.

From the standpoint of prognosis the condition is favorable if the infant or child is not marantic at the start. Dunn¹⁶ has seen only one fatal case. Out of sixty cases collected by Jefferies nine died, six from the urinary trouble. Langstein¹⁷ things 90 per cent recover. Kowitz¹⁸ states that in some localities the mortality reaches 37 per cent. In this country a death rate as high as this never occurs.

The diagnosis of pyelitis is made by an examination of the urine. The agglutination reaction, while of scientific interest, from a practical standpoint is useless. Urinalysis should be done as a routine in all diseases of early life. One specimen does not always suffice, for in case of unilateral involvement the ureter may become stopped and pus not show in the first specimen. Stained smears may show the *B. coli* before pus appears in the urine. The urethral orifice in males and the vulva and urethra in females should be cleansed before specimens are collected. Catheterized specimens are not necessary to diagnose this condition. The urine is best collected on a rubber sheet or oil cloth, as cotton may absorb the pus cells. In place of these a clean test tube or wide-mouth bottle may be utilized. Uncentrifugalized specimens are the best, as nearly any urine will show a few leucocytes. Freeman,¹⁹ however, regards with suspicion two or three cells to a microscopic field in urine collected from boy babies. This rather an extreme view.

In severe cases the pus is visible to the naked eye in the form of flakes and long shreds, the urine being milky in color. The urine is usually very acid and contains a trace of albumen. However, in some cases many

pus cells may be present without any albumen being formed. For this reason an examination of a child's urine is not completed simply by testing for albumen. Under the microscope are found pus cells, a few red cells, and epithelial cells. After the disease has persisted for a few days the pus cells occur in clumps. This clumping is the characteristic thing about the urine in these cases. In severe cases the pus may constitute one-third of the volume of the urine. Beer has devised a simple test for diagnosing punctate abscesses in the kidney that sometimes occur in these cases. By giving methylene blue the urine becomes green; should it become clear, then green again after a day or so, it shows that a punctate abscess is present and has ruptured.

Marked tenderness in the lumbar region is present in some cases of pyelitis, and the kidney may be palpable. Hindman²⁰ urges radiographic study and cystoscopic examination of infants and children suffering with pyuria. In his opinion, girls of any age and boys over 4 or 5 years can be cystoscoped. In younger boys an external urethrotomy may first be done and then the little patient cystoscoped through this opening. In ureteral catheterizations he does pelvic lavage, using $\frac{1}{4}$ to 2 per cent silver nitrate solution. He urges this method of treatment in those cases that resist the usual medical treatment.

Treatment.—Cases of pyelitis in infancy and childhood are treated along three lines: (1) By making and keeping the urine alkaline with sodium bicarbonate or potassium citrate; (2) by using some urinary antiseptic, as urotropin, salol, or guaiacol; (3) by the use of autogenous or stock vaccines.

The weight of evidence seems against the value of vaccines in these cases. Stock vaccines were used in four of my cases, but without any appreciable results.

There is a diversity of opinion as to the relative value of the alkaline and antiseptic treatment. According to Dunn, however, the preponderance of opinion is in favor of the alkaline method. The colon bacilli are less active in this media.

Where the alkaline treatment is employed, to be effective the urine must be kept constantly alkaline. This necessitates frequent

examinations and, consequently, the mother or nurse must be provided with litmus paper to test the reaction of each specimen of urine voided. Relatively large doses of alkalis are needed to alkalinize the urine and the medication has to be continued throughout the night, as well as during the day. For young infants 25 to 30 grains of potassium citrate a day may be necessary, and for older children 10 to 15 grains of this salt may have to be given every two or three hours to keep the urine alkaline.

In any method of treatment sufficient fluid should be given to keep the Sp. gr. of the urine below 1012. Breast-fed babies should not be weaned during an attack of pyelitis. Abt advises malt soup feedings where alkalis are used. Rachford uses one drachm of a saturated solution of sodium phosphate in every glass of milk in chronic cases associated with constipation. Alkaline waters are valuable diuretics in these cases. For older children food rich in salts and spices is to be avoided. Milk, whey, fruit lemonade, alkaline waters and vegetable dishes constitute the dietary. The patient must be kept in bed until all of the acute symptoms disappear, and afterwards they must be guarded against over-exertion and "bad colds."

Alkalis are valuable in the early stages of pyelitis, as they cause the temperature to quickly fall, but owing to the difficulty of keeping the urine constantly alkaline and the tendency to cause digestive disturbances, I believe it best to alternate the alkalis with the urinary antiseptics, or to use the latter entirely. In twenty-three of my cases urotropin was the principal drug used. In only one case was guaiacol used, and as that case passed out of observation, I cannot state the result of the treatment. Rachford, it might be well to state, uses guaiacol carbonate, 2 to 4 grains, three times daily, or one drachm of the liquid form in one ounce of anhydrous lanolin as an innunction once a day. Salol, when used, is given in $1\frac{1}{2}$ to $4\frac{1}{2}$ grains to infants; for older children, 7 grains four times daily.

Where urotropin is used its action depends on the liberation of formaldehyde. As urotropin is decomposed only in an acid medium, it is necessary to keep the urine acid and to

avoid giving alkalines. To render the urine acid, if it is alkaline, sodium benzoate or acid sodium phosphate are the drugs used.

When urotropin is given the urine should be examined frequently for formaldehyde.²¹ If formaldehyde is not present the treatment is useless. Frequent examinations of the urine should also be made to determine the number of pus cells present to see if there is any reduction, and stained smears should be examined to estimate the number of bacteria present.

Urotropin is used satisfactorily in doses of 14 to 16 grains daily. In one case of a baby 1 year old I got good results by using 30 grains daily, as advised by Freeman,²² but in another case 45 grains daily given for two days to a child of two and a half years caused the passage of a large amount of blood. Urotropin should always be well diluted. A very good way to do this is to dissolve a five-grain tablet in a glass of water, and give a part of this as a drink every two or three hours.

According to Quimby²³ the medical treatment of pyelitis has been too haphazard heretofore. He bases his belief on work done by Clark,²⁴ who found that by testing the hydrogen-ion concentration of the culture media on which the *B. coli* is grown it is possible to divide the various strains of colon bacilli into two groups, according to the degree of acidity or alkalinity compatible with life. Quimby suggests that this be used as a diagnostic test so we can determine the type of organism with which we are dealing and, consequently, know whether to administer drugs to acidify or alkalize the urine.

Irrigations and instillations of antiseptic substances into the bladder are advised by some writers. In only one of my cases was this done, but without results.

In conclusion it is strongly urged that routine urinalysis be done in the diseases of early life, for unless this is done many cases of pyelitis will be treated for malaria, and of course without results.

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EFFICIENT PROFESSIONAL SERVICE*

By J. D. Brewer, M. D.,
Dyersburg.

I take this opportunity of publicly expressing my deep appreciation of the honor of being numbered with the presidents of this society. As its twenty-ninth president, I desire to make public acknowledgement of the continued valuable services of our esteemed secretary who has for twenty-nine years given much of his time and rendered most efficient service to the work of this organization. It is through his efforts, largely, that

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we have met each year with prepared programs of great worth and interest to our profession, which have, in my opinion, accomplished no little in the advancement of the medical profession in our section and better enabled us to keep abreast of the times. Therefore I extend, in my official capacity, to Dr. McSwain the sincere gratitude and heartfelt appreciation of this organization, and, in so doing, I voice the sentiment of each and every member, as I personally know.

In considering an appropriate subject to discuss briefly upon this occasion it occurs to me that one of most vital concern to the profession, and to the public as well, is that of efficient professional service.

Not only in our own profession, but in every profession, vocation and avocation, the world today demands one hundred per cent efficiency. The call of the country has gone out alike to the man in professional life, the business, commercial and industrial world, the man in the factory, workshop and upon the farm. And to that call each and all must respond if our country advances as it should advance and takes and maintains its place among the nations of the world that it should and must take.

It is needless for me to do more than mention the great responsibility which has in the past, does now, and will forever rest upon the men who have given their lives, their time and talent to the profession of medicine—the general practitioner, the specialist, the surgeon, the dentist and the nurse, alike. Never in the history of the country was there a greater demand upon the medical profession for the highest service possible, and never has there been put forth so great an effort as at present to meet that demand.

The citizenship of this country in recent years, and especially since our last war, has been awakened as never before to the imperfect physical condition of its young manhood. Our national and state governments have undertaken, through both national and state legislation, to throw around its citizenship appropriate safeguards whereby a more perfect health condition may endure, and have devised ways and means to more effectually stamp out and eradicate contagious diseases and to otherwise improve and make better the

public health condition throughout our land. The burden of making effective all this legislation rests principally upon the medical profession and the world is looking today, more than ever before, to medical science for the upbuilding and the preserving of its public health. Not only is it looking, but it is demanding that the best in the realms of possibility be given. Every community, large or small, is today turning to its doctors, more than at any time in the past, for the establishment and preservation of a health condition in which its citizenship may live and where children of sound body and mind may be born and reared under proper health conditions into strong and sturdy manhood and well preserved womanhood.

As to the best and most practical method of rendering the highest and most efficient service to the public and to our profession is the definite point I wish, for a few moments, to discuss.

When the family doctor is called to the home or is visited at his office it is not only expected by the patient, his family, his friends, and his government as well, but it is demanded that he be given the benefit, as near as possible, of a correct diagnosis. In order that this may be done, where there is room for the slightest doubt in the mind of the individual doctor, there should be existing such an organization and co-operation among the practitioners in the community that the entire skill and ability of the medical profession, organized and co-operating in such community, should be given to the doctor in charge of the patient, thereby giving the patient the benefit of the combined medical skill and ability in his community. In this way can it be gainsaid that a more efficient service would be rendered? The doctor in charge should, under such an organization and co-operation, and he would, be free and unembarrassed to call upon each and all the other doctors for their aid and assistance.

It is one of the oldest and truest of sayings "that in unity there is strength." No great progress has ever been made in any movement, and no substantial advancement has been attained in any cause where there was not a well founded organization and a free and unlimited co-operation. I believe that

the first step to be taken and that the foundation for reaching the highest possible efficiency in the medical profession, whereby we may render the public the greater service and answer a great call of the hour, is in an organization of the members of our profession in every community among the general practitioners, as well as surgeons and specialists. And in such organization there should be a whole-hearted and conscientious co-operation, wherein each member would freely and to the fullest extent lend of his knowledge and skill to his fellows upon all questions and matters pertaining not only to the public health sanitary conditions, stamping out and eliminating contagious diseases, but there should be the fullest and freest consultation pertaining to the individual patient where there is the slightest doubt as to a correct diagnosis and proper treatment. To my mind this would finally lead to a perfect system of practicing medicine and enable the profession to advance in efficient service as it has never advanced before.

This sort of organization and co-operation among the members of the medical profession would not only render a more efficient service to the public, but it would be of unlimited benefit, in my opinion, to the medical profession itself.

It would tend to bring into constant touch the members of the profession in each and every community almost daily.

It would bring about a thorough and practical exchanging of ideas and would encourage and promote a more studious and diligent research of the medical science and give each the benefit of the conclusions and reasoning of the whole.

It would sharpen the intellect and better prepare each individual doctor for advancement in his profession.

It would eliminate petty jealousies, unfounded animosities and uncalled-for rivalry that sometimes have crept into the minds of the individuals and have done much to cause a breach in the friendly relations one to another, to the extent that the profession is reflected upon before the community and the public, thereby retarding the advancement of the best interest of our noble profession.

It would tend to eliminate laggards, if such there should be.

It would prevent breaches of the ethics of the profession and promote a social and friendly relationship that would mean much to us all.

Such an organization would place in each community the services that many communities now seek elsewhere. If we had in each community such an organization as I have mentioned I am confident that we would have, in substance, a combination of specialists at whose hands the public would receive in one community, large or small, the service that now it is compelled to resort elsewhere for.

In my experience I have had occasion to notice the delay in some communities in eliminating and eradicating contagious diseases by reason of the fact that the medical skill of such community was not organized to meet the exigencies of the occasion, with the result that, before an organization could be effected and the fullest co-operation had, the disease which should have been strangled in its incipency had spread over the entire community, while if there had been an organization with co-operation among the members of the medical profession, there could have been an immediate suppression and a final eradication without any spread of such disease.

There is one feature of this method that I wish to mention also, and that is, that such an organization would establish for the profession a high standard of professional service rendered, for which the public is willing and ready to pay. It would give to the profession and to each individual doctor a more liberal and just compensation for his services than under the present one-man method. I believe in practicing the profession of medicine with the full and hearty support of my fellow doctors.

It is my sincere hope that the time is not far distant when the medical profession will present to the public a solid front, organized in every community, not for any selfish or personal gain, but that the profession as a whole may reach that degree of efficiency it is entitled to reach, thereby giving to mankind the benefit of combined effort, skill and ability.

TUBERCULOSIS OF THE KIDNEY.

By R. W. Grizzard, M. D.,
Nashville.

Since renal tuberculosis commonly masquerades under remote, unrecognized or misinterpreted symptoms, and that it requires at times all the armamentaria at the command of the surgeon to arrive at a correct diagnosis, I was prompted to bring this subject to your attention.

There are pathologically two types of renal tuberculosis: First, the acute or subacute miliary tuberculosis, which occurs as a part and parcel of a general miliary tuberculosis, and as such is of medical and not of surgical interest; and second, chronic renal tuberculosis, the type under consideration in this paper.

Chronic renal tuberculosis is often the only apparent tuberculous lesion the patient presents; hence the term, "primary renal tuberculosis," has been used by some writers. This, of course, means "primary" only in so far as the genito-urinary tract is concerned, for, pathologically speaking, this is not true, as it is secondary to tuberculous lesions elsewhere in the body. These lesions, such as healed focus in the lung or latent or healed tuberculous mesenteric lymph glands, at times cannot always be easily demonstrated clinically, but may require a most painstaking examination at autopsy to demonstrate. And it is not until the entire postmortem fails to reveal the presence of tuberculosis elsewhere that one is justified in making a diagnosis of primary renal tuberculosis.

In the cases in which there is associated evidence of tuberculosis of the bones, joints or cervical lymph nodes, we have no difficulty in demonstrating a primary focus. In those cases, dying of renal tuberculosis in which a careful autopsy is carried out, one usually finds a healed lesion in some portion of the body, even though such a focus was not demonstrated clinically, hence it is a good clinical rule to consider renal tuberculosis, although primary in the genito-urinary tract, as being secondary in the body.

It is essentially a disease of adult life, occurring most frequently between the ages of

twenty-five and fifty years, but we may find it at any age. As regards its frequency in male and female, this is an unsettled question. The writer is inclined to the opinion that it occurs almost with equal frequency in male and female, for the statistics of surgeons whose practice is of a gynecologic trend report its frequency in favor of the female, and the urologic surgeons report in favor of the males. Walker, in his series of 382 cases, found 182 males and 200 females.

It is claimed by some writers that the diagnosis is made oftener and much earlier in women than in men, hence more women are operated upon than men. In men the diagnosis is often made relatively late, so that more men than women are beyond surgical relief when diagnosed and, therefore, while more women are operated upon, more men are refused operation.

Side Affected.—Early renal tuberculosis is always unilateral and if the infected kidney is subjected to early surgical interference, the opposite kidney remains in the great majority of cases free from disease. This last statement is at variance, however, with the autopsy reports, according to which renal tuberculosis in most cases is a bilateral disease. This is true at the post mortem table, but we must not forget that these are the findings in patients who died and who were not subjected to early treatment.

The statement is frequently made and in a measure borne out by statistics that the right kidney is more frequently the seat of a tuberculous lesion than the left, due to the right kidney being more movable, but the percentage is so small as not to have very much significance. In Kuster's 349 cases there were 189 cases of right-sided tuberculosis as compared to 160 cases of left-sided tuberculosis.

Routes of Infection.—Clinically, the question of importance is, "How do the tubercle bacilli reach the kidney?" The most plausible theory and the one most universally accepted by clinicians is that the tubercle bacilli reach the kidney by the blood-stream in a large per cent of cases. This conclusion is based upon facts gleaned from three sources: First, clinical observation; second, autopsy findings; third, animal experiments.

One is now in a position to determine by

means of cystoscopy and ureteral catheterization whether or not the kidney is the only part of the urinary tract affected. In cases of bladder involvement, one is often able to state that the kidney was diseased before the bladder, because in the former we find evidences of far-advanced tuberculosis, whereas the bladder lesions are either recent, or may be localized to regions of corresponding ureteral orifice.

In the cases that come under observation early in the course of the disease, there may be no bladder involvement at all. These clinical facts have also been proved at autopsy in cases of unilateral renal tuberculosis. Occasionally one may observe cases of renal tuberculosis without involvement of the bladder in patients who refuse to have surgical treatment. Later, when they again present themselves for examination, cystoscopy will show that there is now evidence of tuberculosis localized around the corresponding ureteral orifice. Further clinical proof that genito-urinary tuberculosis is primarily renal may be had by routine cystoscopic examination in early cases, after the diseased kidney has been removed, to see the bladder changes completely disappear, and the bladder mucosa again become normal.

As to animal experimentation, there are noteworthy reports, particularly the work of Pels Leusden, who was able to produce renal tuberculosis in animals, that closely resembled renal tuberculosis, by intravenous injection of tubercle bacilli.

The second theory as to route of infection is: by extension along the lymphatics of the ureter, should the bladder be infected by tuberculosis secondary to tuberculosis of the prostate or seminal vesicles, epididymis, etc. This has been demonstrated by Bauereisen, who claims to have shown experimentally that there is a lymphatic connection between the bladder and the kidney by lymphatics of the ureter. Cabot and Crabtree, however (some time ago) suggested in arguing against this mode of transmission the anatomical fact that in regions of the body where the course of the lymphatics have been demonstrated, it has been found that they in general have followed courses pursued by the blood vessels supplying the region. While the actual course

of the ureteral lymphatics has, I believe, not yet been demonstrated, it is known that the blood supply of the ureter is a segmental one—that is, its vessels traverse its wall for a certain distance and then leave it. If the lymphatics follow their usual rule in following the blood vessels of the ureter, they would, therefore, be prone to leave the wall of the ureter before arriving at the level of the kidney. Infection, therefore, could scarcely travel in an unbroken path the length of the ureter through the lymphatics. This at any rate offers a theoretic route by which tubercle bacilli may reach the kidney.

Third Theory as to Route of Infection.—Ascending infection through the lumen of ureter. While this is probably not a frequent mode of transmission of infection, it must be regarded as a possibility.

Fourth Theory as to Route of Infection.—It is claimed that tuberculosis of the kidney may be lymphogenous in origin, according to the observations and findings at autopsy of Tendamloo and Bongersma. Their theory is that the “tubercle bacilli are carried from the lung and bronchial lymph-glands through pleura and diaphragm to the para-aortic glands, and from there into the kidney.” This theory has found very few adherents, doubtless due to the fact that the evidence, clinically and otherwise, is overwhelmingly against it.

Fifth Theory.—By contiguity.

Symptoms.—For convenience, these may be considered under three headings:

1. Kidney symptoms.
2. Bladder symptoms.
3. Symptoms due to changes in urine.

Those of least importance are the kidney symptoms.

Renal palpation may or may not be of value as an aid in diagnosis. Often, even in well-advanced cases, palpation may be entirely negative, or if positive, we must rule out the possibility of there being an enlargement or compensatory hypertrophy of the normal kidney. The tuberculous kidney at times is small and contracted, and hence escapes detection upon palpation.

Tenderness on deep pressure with thumb placed in angle made by last rib and the deep lumbar muscles or by ordinary palpation is variable. Should these fail, it may be elicited

by fist percussion as practiced at Zuckerandl's clinic in Vienna, but we must bear in mind the possibility of this symptom being elicited on the side of the normal kidney, hence leading to an erroneous conclusion.

Renal colic associated with or as a symptom of renal tuberculosis in a large per cent of cases is due to incrustations of necrotic tissue in the tuberculous cavities or in the pelvis of kidney. Sometimes it is due to the presence of true calculi. If to the latter, doubtless such calculi are merely coincidents with the tuberculosis. Such a coincidence of lesions are usually demonstrable by Roentgen ray and ureteral catheterization and verified at operation.

Bladder Symptoms usually predominate with renal tuberculosis. A fair estimate gathered from most reliable authorities is that 90 per cent of cases of renal tuberculosis display vesical symptoms extending over variable periods from a few months to several years. Hence it is a conservative attitude to regard all cases of persistent irritability of the bladder with pyuria, particularly when in the young adult, as due to renal tuberculosis until the contrary can be proved.

First. Usually the first bladder symptom is frequency of urination, associated at times with great urgency, even to incontinence, but as a rule the incontinence occurs in the late cases with ulceration of the bladder mucous membrane. One of the characteristics of frequency associated with renal tuberculosis is its nocturnal occurrence. It may require the patient arising once or twice a night or may be as often as once or twice each hour.

Second. Pain, due to sensitive bladder mucosa and usually associated with the act of micturition, may be localized to the bladder, but more often it radiates along the urethra. The bladder, often due to tuberculous involvement, is so very sensitive that even the introduction of warm bland fluid as normal salt solution or sterile water for cystoscopic examination produces very great pain.

Third. Suprapubic tenderness associated with bladder pain. Many patients are exquisitely tender, so that women, for example, are unable to wear their corsets with comfort. To the examining hand, these patients are very sensitive, so that one cannot make much pres-

sure over the pubes without giving patient considerable discomfort and satisfactory pelvic examination in some of these women would require the use of an anesthetic.

Fourth. Cystoscopic findings. Many cases of tuberculous cystitis present a cystoscopic picture no different from any other cystitis. Then again we find the gaping crater-like ureteral orifice—typical nodules or tubercles and ulcerations with areas of bullous edema distributed over the trigone or confined to regions of ureteral orifices, all of which are quite typical of tuberculosis.

Changes in the Urine.—First. The most important finding and the one thing that clinches the diagnosis of renal tuberculosis, is the demonstration of tubercle bacilli in a specimen of urine obtained per ureteral catheter from the kidney. Kretschmer claims that the organisms can be demonstrated in the urine in upwards of 90 per cent of the cases.

Second. Pyuria. The presence of pus in the urine is more constant and more easily demonstrable than tubercle bacilli. It may vary in amount from one examination to another, and at intervals may be entirely absent from urine and yet, at operation, one may find a very advanced tuberculous kidney.

Third. Hematuria. This is not always present, especially early in the disease. It may be microscopic or again it may be so great as to overshadow and obscure all the other symptoms of renal tuberculosis or even to endanger the life of the patient, necessitating a nephrectomy. Terminal hematuria with the passage of small blood stained shreds of pus is seen much more frequently than is the presence of the profuse type. Tuberculosis, we must remember, is one of the three most frequent causes of hematuria, the other two being stone and tumor.

Out of a series of 238 consecutive cases of hematuria reported in the Journal of the American Medical Association, February 24, 1917, thirty-three were due to tuberculosis of genito-urinary tract, so that of all the things that produce hemorrhage in the urinary tract one should think of tuberculosis among the first.

Having arrived at a definite diagnosis of unilateral renal tuberculosis and having tested and proven the efficiency of the healthy

kidney by thalein test, etc., to be well up to normal and capable, as far as we can tell by clinical tests, of carrying out the work of both kidneys, we should advise immediate nephrectomy.

Essential Points of Operative Technic.

Usual kidney incision. This incision should be liberal, so as to get a good exposure of the ureter in order to deal with it as its pathologic condition demands. Mayo claims that less than five per cent of the ureters in tuberculosis of kidney require removal, and, quoting Mayo, "these are usually cases in which a stricture exists in lower portion of ureter close to bladder, so that there is more or less retention on that side, a condition which exists in a small percentage of the total number, and which may be differentiated by ureteropyelography." Such ureters should be removed with the kidney at the primary operation.

If the kidney has become converted into a closed sac, the ureter will often be found to be obliterated just below the pelvis. In pure tuberculosis the ligation of such a ureter and sterilization of the stump disposes of it safely. In the "pipe-stem" ureters and all containing a lumen, but in which there is no mixed infection, the injection of 5 to 10 m. of carbolic acid into the ureter, with ligation, insures such a ureter and the wound against further trouble. In these two types of cases the nephrectomy wound should not be drained, because of the danger of secondary infection of the ureteral stump which so often follows the drainage tract, leading to wound infection and sinus formation.

Where there is secretion of urine, and especially when there is a mixed infection present, the stump of the ureter should be attached to the skin at the anterior extremity of the incision and should not be dropped into the wound, thus avoiding the possibility of wound infection with tuberculosis and sepsis. The greater percent of the ureters thus treated will heal spontaneously. Those which fail to do so can be removed at a secondary operation very conveniently from in front.

Ligation of Pedicle.—This should always be accomplished when possible by Mayo's two-clamp method for pedicle ligation and thereby avoid slipping of your pedicle and

troublesome hemorrhage. Apply two clamps on pedicle about one-half to three-fourths inch apart, and remove clamp distal from the kidney, apply ligature in groove made by clamp and then remove other clamp and apply ligature. By this method we have two firm ligatures on the pedicle that, if properly applied, make it perfectly secure from hemorrhage. I am aware that mass ligation of this type theoretically is not as good as ligation of separate vessels, but with sepsis and tuberculosis present, direct ligation of each vessel cannot be accomplished so safely.

Perirenal Fat.—The present train of thought is to remove as much of perirenal fat as can be quickly and safely taken away, as it is supposed by many of the more recent authorities to be one of the causes of persistent sinus formation. It is not believed that all of the post-operative fistulae or sinuses are due to the stump of the ureter, which is left behind, as was formerly believed.

The clinical evidence of the involvement of the fatty capsule is seen in some of the late cases where at the time of operation it is demonstrable as being definitely pathologic. That it is tuberculosis has been proven in many instances in which the fatty capsule was removed and examined histologically.

Tubercles have been demonstrated in cases in which the fatty capsule looked perfectly normal to the naked eye. Tuberculosis of the fatty capsule may be evident in cases where tuberculous granulations are seen on the surface of the kidney. Not only are tuberculous changes found in the cases in which the fatty capsule appears unaltered to the naked eye, but they are also found in the cases where the fibrous capsule of the kidney appears perfectly normal. These facts should impress the importance of cases of nephrectomy for tuberculosis.

To sum up:

First. Renal tuberculosis is always secondary to tuberculosis elsewhere in the body.

Second. Early renal tuberculosis is always unilateral and by its early removal, the other kidney and life of your patient may be conserved.

Third. Routes of infection, through blood stream most common.

Fourth. Tuberculosis of bladder usually secondary to renal tuberculosis.

Fifth. Most important diagnostic symptoms of renal tuberculosis are: First, persistent irritability of bladder associated with pyuria or hematuria, or both; second, the finding of tubercle bacilli in a specimen of urine obtained per ureteral catheter from the kidney, when linked with the proper history and clinical findings; third, characteristic cystoscopic picture.

Next and last, operative technic, we would here lay stress on:

First. Importance of proper treatment of ureter, as outlined in paper. --

Second. The security of two-clamp method for pedicle ligation.

Third. The advantage of removing as much of perirenal fat as possible and thereby lessening the danger of persistent post-operative fistulae.

In closing let me say that I did not hope to contribute anything new to literature by presenting a paper on this subject, but as the prognosis depends on the promptness with which the condition is recognized and surgical treatment instituted, I thought that if I could, by calling your attention to this subject, prevent some few of the cases from going unrecognized until it was too late, this paper would have accomplished a service.

FOCAL INFECTION FROM A DENTAL STANDPOINT.*

By David P. Houston, D.D.S.,
Chattanooga.

I am grateful for the privilege of addressing you this evening, both personally and for the dental profession, as it is evidence of that spirit of co-operation between the professions of medicine and dentistry. The modern dentist is more solicitous of the general health of his patients than formerly, and likewise medical men realize that the condition of the oral cavity has a decided relation to the general well-being of their patients. So I take

it as an honor to the dental profession to be invited to address you, and for them I thank you.

My subject tonight is "Focal Infection from a Dental Standpoint and How to Prevent It." First let me mention the principal forms with which we have to deal—namely, pyorrhea and so-called alveolar abscess. Both are preventable to a great degree, and a consideration of that will conclude this paper.

Pyorrhea is that chronic infective process having its incipency in chronic gingivitis, accompanied usually by subgingival deposition of serumal calculus and characterized by irregular pocket formation. It is due both to local and systemic causes, and likewise, in the course of time, will produce both local and systemic effects.

Among the principal local causes we find the fermentation and putrefaction of food debris, due to the non-use, or the faulty use, of the tooth brush and the injudicious use of the toothpick, and faulty contact points from poor fillings and crowns and too narrow interproximal spaces where teeth are crowded and irregular, which cause a breaking down of the soft tissues. The \$4.00 gold crown, while being constructed of good gold, usually is made after the "Mother Hubbard" pattern, and is a constant source of irritation to the cervical soft tissues.

Among the systemic causes of pyorrhea we find incomplete elimination of systemic wastes the most important. Errors in metabolism sufficient to produce any constitutional disease is almost always accompanied by pyorrhea. Infectious diseases may cause an irritation to the gum tissues directly as a result of a systemic intoxication. And, then, when a person is suffering from some chronic disease the physiological function of the teeth, namely, thorough mastication, is greatly impaired, and hence the mouth cannot be kept clean. Doctors don't proscribe a tongue scraper to clean a coated tongue, nor should a dentist rely solely on the tooth brush to keep the teeth clean. Dentists are specialists, and for this reason should co-operate with the physician, and the physician with the dentist, and they should co-operate in the prevention of disease, as well as in the cure.

*Read before the Chattanooga Academy of Medicine June 18, 1920.

The symptoms of pyorrhea are almost entirely lacking in its first stages, and both dentists and physicians when asked by patients if they have this disease, will too frequently say "No," unless it is a well advanced case. Bleeding gums should be diagnosed pyorrhea, for if left untreated, in most cases, this is what will happen. Later when this continued irritation has caused pockets too deep to drain at the free margin of the gum, pericemental abscess will result, and, in many cases, this is the first time the patient will seriously think of consulting a dentist. This condition can be ameliorated by a skillful dentist, but the damage has been done. The pocket has formed, the process has been disintegrated, never to return to normal. How much better if the patient had realized that this was according to schedule, and had taken the proper steps years before to prevent this condition.

Such conditions can be cured in the sense that they can be arrested and held practically free from infection for years, if the patients will do their part. But if they had done their part, they would not have been in such condition, and not being in the habit of seeking frequent dental examination and thorough daily prophylaxis, the prognosis is unfavorable for many. What, then, from the standpoint of the patient's health is the best recommendation for these?

This disease, not having painful local symptoms, a patient may linger, neither sick nor well, suffering from systemic intoxication, characterized by progressive muscular weakness and general malaise; their pride, true or false, deterring them, sometimes for years, to get their third set of teeth. But how awful for the middle-aged business man, at the height of his business career, to be forced to such an end; how painful for the matron of forty to have to be classed as an old lady because she has to wear false teeth! But, on the other hand, how fatal it is to retain these chronic foci of infection, the whole system becoming day by day more toxic and a greater burden thrown on the body functions, until some organ, weaker than the rest, will give way under the strain and the patient will lie down and die some years sooner than otherwise.

So much for this class of foci, and I realize I might have gone more fully into the subject, but only a casual attention is intended in the scope of this paper.

Now, as to the second group of oral foci of infection—that of alveolar abscess. Many classifications of this disease are given:

Acute, sub-acute and chronic, those with fistulous opening and so-called blind abscess. According to Bryan, "an abscess is an accumulation of pus circumscribed in a cavity of its own formation."

Infection is the "sine qua non" of an abscess, and since the recent bacteriological findings of Henrici and Hartzell have demonstrated that bacteria exists in vital pulps and in the dentin of various teeth, even after thorough excavation, it is difficult for 100 per cent vitality men to be uniformly consistent, for frequently pulps die under perfect fillings, and these teeth become abscessed. According to Henrici and Hartzell 48 per cent of coronally sound but pyorrhetic teeth were infected with coccal forms within the pulp tissues. We speak of nature as endowing the several organs with the power to protect against irritation and infection, and a minute study of the manner in which pulpless teeth sometimes protect themselves would be quite interesting, but such is not intended in this paper. Nor do I intend to open for discussion here the question of whether all teeth with exposed pulps should be extracted instantaneously. However I will say that this question will soon be up to each individual dentist, and history is repeating itself in that dentists of today are more and more practicing as did our forefathers, who were not acquainted with the branch. On the other hand, very eminent men in the dental profession contend that many teeth can be treated and filled and remain functional and harmless for years. But no one contends that it is an easy task to do this, so the fewer teeth of this character we have to treat the better for the public health.

Before drawing my conclusions, I will quote from Dr. Greene's paper, read at the Midwinter Clinics at Atlanta in March, in which he draws the line as to which can be treated and which cannot: "Carious teeth with infected pulp but subgingival dentin not completely infected, with the apex free from disease and

vital" is the class where conservative measures can fairly be used. But the stress is laid on the **vital apex**. From statistics made by Gallahan, Grove, Hyatt, Grieves and Black, 52½ per cent of all filled roots were not visibly diseased; 47½ per cent, therefore, must have been diseased, and therefore harmful. But, quoting from Grieves, "What of this 52½ per cent?" If it does not represent a composite of the patient's general resistance and a local resistance in and about the tooth, plus average dental skill and effort in the past, what does it indicate? Who and what retained these teeth in function to the patient's great comfort, if the conservative dentist did not? Surely not the "100 per cent vitality men" both doctors and dentists who extract all are filled pulpless teeth.

All great movements, though having good in them, may be carried too far, and eventually the pendulum will swing. But usually a step forward will have been gained. Assuming that too many teeth have been extruded, whether rightfully or wrongfully, what should this fact cause us to deduce? That both the dental and medical profession must institute some effective means of preventing such oral conditions, so that extraction of teeth will seldom have to be considered. We must co-operate with each other, and among ourselves, we must co-operate with our city, county, state and national government, our schools and civic organizations seeking to improve the public health.

I do not think I am narrow if I seem to lay great stress on the importance of a healthy oral cavity, with an efficient masticatory apparatus. Dental defects lead among human ailments, and who can deny that good teeth are a great asset? It is an economic question for the state to consider, for from many viewpoints our people would be better and more efficient citizens if they had better teeth. If all of my hearers had the toothache right now you would all agree with this, but while I do not think any of you will deny my statement, I will feel very much elated if I impress a half a dozen of you with the importance of doing something constructive toward prevention on a large scale.

One of the greatest movements toward this

end in Tennessee is the Bureau of Oral Hygiene, operating under the State Board of Health. The director is selected from one of five recommendations from the State Dental Association to the State Board of Health, and appointed by the Governor. It is his function to direct a propaganda of education and examination of school children over the state, and to co-ordinate the influence of every ethical dentist and physician, every teacher and welfare worker and civic organization.

Children, especially, must be impressed of the importance of frequent dental examination, and the daily care of the mouth, so that when they grow up they will not depart from it. The state, and by that I mean the governing power, must provide for the treatment of its wards, and should compel children to receive regular instruction in the care of their health, the mouth being the most important portal of disease. Personally I feel that for the best interests of the dentist's patients, the physician must frequently assist in the treatment. To treat general conditions is outside the field of dentistry, and general conditions certainly have a bearing on the condition of the oral cavity, perhaps as nowhere else. I believe it to be the best indication of constitutional disease, long before some of the classical symptoms appear. Thus I am urging you doctors to look into the mouths of your patients, and look well; then send them to a dentist. You'll seldom make a mistake if you send them to the right kind. Don't wait until all the patient's teeth need to be extracted. Send him in time to prevent such hard luck. You have been longer in establishing your prestige, and your patients respect your advice. You will not lose prestige by helping to prevent some of the things I have spoken of tonight.

In summarizing, I would call your attention to the two principal forms of oral infection—pyorrhea and alveolar abscess, both largely preventable. I would emphasize the fact that the patient's general state of health has a great deal to do with the relative susceptibility and immunity of these affections, and therefore the physician must co-operate in promoting the general health. And as to the second phase of this paper, "How to prevent," I have mentioned the forward move-

ment of the dental profession in having a dentally educated member of the State Board of Health. Prevention is primarily a question of education and, like charity, it should begin at home. Our own, and your profession, must visualize the great difference in the citizenship of our country, if bad teeth and oral conditions were not a factor. You are realizing more and more the disadvantage you are under in curing your patients when their mouths are full of infection, and you should be vitally interested in measures of prevention. Education and publicity are the greatest enemies of ignorance and disease, and I bespeak for the efforts of the Bureau of Oral Hygiene your hearty sympathy and co-operation. I cannot go into details, for details must be worked out as conditions arise, but we all, as members of the healing art, must and will conceive and bring about some practical plan whereby the mouths of the coming generation will be practically free from chronic infection.

In general, my plan is for doctors and dentists to preach the gospel of mouth hygiene to all their patients in routine practice; that compulsory education in mouth hygiene be taught in our schools, with frequent dental examinations, and demonstrations of how to care for the teeth; that free clinics should be instituted and maintained at public expense for such as are not able to pay, and that children before entering school have a certificate showing their mouths to be in a reasonably sanitary condition. Industrial dentistry for large manufactories should be encouraged as a means to increased labor efficiency and better citizenship.

Finally, let all who are interested in our fellow men strive to maintain that spirit of unselfish service and sacrifice when the movement of prevention is not exactly as we think it should be. Let us feel the sentiment in the lines by Owen Meredith, who wrote:

"Others shall sing the song,
Others shall right the wrong,
Finish what I begin,
And all I fail of, win.

What matter I or they,
Mine or another's day?
So the right word be said,
And life the sweeter made?"

THE SIGNIFICANCE OF CHOKED DISK.

By A. C. Lewis, M. D.,
Memphis.

This is a subject of interest to us all. It is of especial interest and importance to the internist, the neurologist, the surgeon and the ophthalmologist.

To the internist choked disc furnishes an invaluable aid in making a diagnosis of many internal disorders. It proves to the neurologist the existence of intracranial pathology and assists him in its localization. Surgical intervention is usually indicated and the general surgeon is called upon for this work.

The ophthalmologist usually discovers the presence of choked disc and it is to him that the patient looks for alleviation of his ocular symptoms.

In every case in which there is a suspicion of a cerebral affection, the fundus of the eye should be examined with an ophthalmoscope. Because choked disc originates in some deep-seated affection and is not a local lesion its development is usually bilateral.

Many theories have been advanced by as many writers of the etiology of choked disc. Most of these have been relegated to the discard and remain of historical interest only. Two theories are generally accepted at this time—one, the mechanical-pressure theory of Manx, Schmidt-Rimpler; the other, the inflammatory theory of Leber.

By the mechanical theory we understand that a high intracranial pressure retards the return flow of the lymph from the optic nerve sheath to the brain. Distention of the sheath follows and fluid is forced into the ocular end of the nerve. The retinal vessels become strangulated along with the intra-ocular portion of the nerve and edema of the disc follows.

The inflammatory theory "assumes that the fluid in the nerve sheath excites a neuritis by conveying pathological material into the optic nerve behind the eye."

In the language of Halstead, "whether the process in the nerve and nerve-head is inflammatory in nature (as evidenced by round cell infiltrations, exudate, edema, hemorrhages,

increase of nuclei), or merely a passive congestion and edema, it is certain that in a great majority of cases, and particularly in those in which an increase in intracranial pressure is demonstrable, decompression operations lead to retrogression of the eye conditions, and even to the complete or almost complete recovery of vision in eyes previously nearly, though rarely quite, blind."

The term choked disc should really be reserved for cases of non-inflammatory edema of the nerve head and should not be applied to true neuritis where there is an active inflammation. It is usually applied, however, to any swelling of the nerve-head which reaches an elevation of 1 m. m. (Oatman).

Among the causes given for the mechanical compression of the cranial contents with the production of choked discs are tumors, inflammatory products, depressed bone, excess of cerebro-spinal fluid, blood, etc. Choked disc may be due to meningitis, syphilis, and disease of the nasal accessory sinuses; mastoid operations involving the jugular vein and lateral sinus are said to often cause it. It is of common occurrence in acute hydrocephalus.

Most cases of choked disc are undoubtedly caused by brain tumor. It occurs in from 80 to 90 per cent of tumors of the brain and has come to be considered almost a pathognomonic sign in these cases. The location of the tumor is more influential than is its size in causing choked disc. When situated in the cerebellum or corpora quadrigemina, papilledema is said to be almost always present. Fuchs says this is due to the unyielding character of the tentorium which stretches over the posterior fossa of the skull; compression of the aqueduct of Sylvius results with a consequent stasis of the cerebro-spinal fluid in the anterior ventricles of the brain. Furthermore, the fact that basal tumors rarely cause choked disc is probably because the pressure from the tumor blocks the entrance of the cerebro-spinal fluid into the optic nerve sheath.

The ophthalmoscopic picture of the papilla or discs in a marked case of papillitis or choked disc is spectacular, if not startling, and one not quickly forgotten. The color is white, grey, or reddish and is mottled with

white spots of exudate or red spots of hemorrhage. The outlines are not distinguishable, exudates extending beyond them into the retina. This gives the nerve-head an appearance of greatly increased diameter. The swelling causes the nerve-head to resemble the head of a mushroom. The projection above the level of the surrounding retina may be 5 or 6 diopeters (about 2 m. m.). The arteries appear thin and small, while the veins are dilated, tortuous and dark, due to compression by the swollen nerve. The blood vessels may seem to be interrupted in their course where they dip beneath the exudate. The hemorrhages may be limited to the area of the swollen papilla, or may involve the retina as well. These vary greatly in size and form.

Cerebral tumor may exist for a long time without causing any other positive symptom besides the papillitis. This sign is therefore of great diagnostic value.

A high degree of edema of the nerve may be visible without any disturbance of the visual acuity. Vision often remains normal for months in these cases, showing that the compression of the nerve fibers is not enough to destroy their function. The degree of compression cannot be determined by the amount of the edema present.

Rapid development accompanied by early loss of vision indicates an inflammatory or toxic condition. Usually the vision becomes affected sooner or later and is permanently destroyed unless the pressure is relieved. Little visible change occurs in the nerve-head after full development of the choked disc for a long time; the swelling then gradually disappears, the disc margins reappear and atrophy of the nerve is then established.

The subjective ocular symptoms of choked disc vary greatly and are dependent somewhat upon the variety, but more particularly upon the location of the intracranial pathology. We may find normal vision, normal pupils and normal fields, for both white and colors. Or there may be inequality of pupils; contracted fields, hemianopsia, scotomata, derangement of the color fields; visual hallucinations, transient attacks of blindness, or loss of vision.

Many of the points and facts that I have

mentioned in this paper are brought out and emphasized in the following case that came under my observation three years ago:

On June 20th, 1917, Mrs. A. C. M., white, age 38, of Smithville, Miss., was referred to me by her family physician, Dr. V. H. Beon. Has suffered a great deal with pains in head and back of neck for several years. Vision blurs when looking at objects near or far, and eyes tire quickly when trying to use them. Sees double at times and has blind spells of short duration. Patient holds head to left side. Vision equals 20-40 in each eye after correcting refractive errors with glasses. The external eye muscles showed 1 degree of left hyperphoria and 12 degrees of esophoria. The right external rectus was especially weak. Patient also complained of vertigo at times, her deep reflexes were absent, and she had suffered with rheumatism in the past. Ophthalmoscopic examination showed both discs congested, veins engorged, and numerous small hemorrhages in the retina.

She was referred to Dr. Otis S. Warr for further examination. He found a heavy trace of albumen in the urine besides neurotic symptoms. June 21st she was referred to Dr. Wm. G. Somerville, who reported a strong probability of brain tumor. June 27th congestion of discs much less, retinal hemorrhages smaller and thinner, and vision in each eye is 20-20. July 18th, left eye pain- ing some since her last visit, four weeks ago. Vision O. D. 20-20—O. S. 20-40—O. U. Marked papillitis, measures 5 and 6 D. respectively in the right and left eyes. Normal blind spots greatly enlarged. Superior and nasal fields considerably contracted.

August 14th: V.-O. D. 20-20, O. S. 20-30. Has blind spells several times every day, few moments duration. No diplopia. Slight pain in left eyeball; feels like her eyes are swollen. August 15, patient taken to the Baptist Memorial Hospital and trephining operation done by Dr. Wm. F. Clary. The dura was not opened, as the patient was getting in bad condition.

Patient not seen again until June 24. 18 V-20-50 in each eye. Has 30 degrees right internal squint. Nasal fields almost absent. Discs appear about the same as when last ex-

amined. Patient says she feels better and no longer suffers with pains in the head.

I never saw the patient again, but am told that she died early in 1919 with influenza.

In conclusion I will leave you with the very excellent advice given us by Prof. Ernest in the treatment of these cases:

"Trephining is particularly advisable in those cases in which the brain lesion itself is curable, and hence especially in meningitis serosa. In this disease by trephining promptly it may be possible to prevent a permanent blindness being left after the main disease has been cured. Even in inoperable brain tumors, trephining may be indicated as a palliative measure for relieving pain and saving the sight. Horsley lays down the rule that no case of optic neuritis, not due to general infectious disease or toxic causes, should be allowed to go on to blindness without an operation.—D.)"

CLINICAL REPORTS

Case Reports.

By Richard A. Barr, M. D.,
Nashville.

Case 1.—White baby, 2 months old, male, seen with Dr. O. H. Wilson July 13, 1919. At birth he was well developed and apparently perfectly healthy. He was breast fed and did well until three weeks old, when he suddenly began vomiting. The vomiting was projectile in type, and while it occurred only once or twice a day, it was persistent and the little fellow soon began to lose flesh. When I saw him he was two months old and was very much emaciated. His bowel movements had been scanty in amount, but there was always apparently some food residue in them. His urine also was scanty. On physical examination in addition to his emaciation there was distention of the upper abdomen with plainly visible peristaltic waves moving from left to right. Below the navel his abdomen was rather flat, almost scaphoid. No tumor could be palpated. Dr. Wilson, who had had him under observation for a

few days, had made a diagnosis of congenital pyloric stenosis and had tried to see what could be done by attention to diet. The baby's mother was ignorant and, though she was interested, it proved impossible to get her to carry out orders. The baby had continued to lose ground and Dr. Wilson had advised operation, which was accepted before I saw the case. I concurred in Dr. Wilson's opinion and advice and operation was arranged for next day.

The abdomen was opened under local anesthesia. We made the mistake of not washing out the stomach before operating, and this organ ballooned through the incision as soon as it was made. A hard tumor the size of a pecan was readily felt at the pylorus but could not be brought up because of the close attachment of the duodenum to the posterior belly wall. A tube was introduced to empty the stomach, but this started the baby to crying and it was found necessary to give him a general anesthetic to complete the operation. He was given chloroform, and without any bad results, but I consider that it was a mistake to use chloroform, for it certainly has a greater tendency to produce acidosis, when used in starvation cases, than has ether.

The Rammstedt operation was done, a longitudinal incision being made through the peritoneal and muscular coats of the pylorus down to the mucous membrane. This incision was left open after the edges of the muscle wound had been stripped slightly from the mucous membrane. The parietal wound was closed throughout. The baby made a prompt recovery, there was no vomiting after operation, and he got fat and strong, though Dr. Wilson reports that he developed a diarrhoeal trouble in December last and died.

Congenital pyloric stenosis is a condition easily recognized if we will only not forget to look out for it because of its rarity. It occurs uniformly almost in breast-fed males and is manifested by projectile vomiting, progressive emaciation, scanty bowel movements and scanty urine, visible peristaltic waves from left to right across upper abdomen, and in most cases by a small hard tumor which is felt between the right costal arch and the umbilicus. The symptoms usually begin suddenly during the first three months of life

and in a child that has apparently been perfectly well until that time. It is not my purpose to claim that all cases of congenital pyloric stenosis are surgical, but I do wish to urge the propriety of considering surgery in every case, and of performing surgery in all cases that do not promptly respond to medical treatment. After operation the feeding of these cases requires the best skill of a competent pediatricist, if the surgeon's results are to be any credit to him.

There are several points of interest to the surgeon about these cases which it may be well to discuss.

First of all, in the matter of anesthesia: I believe that a local anesthetic is desirable and practicable only when the presence of an easily palpable tumor shows the pylorus movable and capable of ready delivery outside the abdomen. When used it should be combined with morphia given to full physiological effect. The stomach should be carefully washed out before the morphia is given, and after that the patient should be disturbed as little as possible.

The question of gastro-jejunostomy versus the Rammstedt operation may be considered still subjudice, but personally I much prefer the latter. In doing this operation great care is needed to prevent opening the duodenal mucosa. On the stomach side there is little danger with ordinary care. The so-called hypertrophied and spasmodic muscular fibres of the pylorus show no tendency to retract from an incision made in them, and it is necessary to use a pair of scissors or a hemostat to force the incision open and facilitate recognition of the submucosa when it is reached. The incision in the tumor should always be deepened on the stomach side first, and it is not a bad idea to extend it slightly on to normal stomach. Fine needles and fine silk suture material should be at hand to control bleeding points. I suggest silk because catgut has too much bulk and is not sufficiently pliable. It is not necessary nor desirable in my opinion to separate the submucosa from the muscle even at the margins of the incision. If division of all structures down to the submucosa across the entire width of the tumor does not result in relief of the obstruction, then the Rammstedt op-

eration is a failure, and some other procedure should be used.

Case 2.—White man, 32 years old. December 20th, at 9 p. m., he was struck across the abdomen about the level of his umbilicus by the steering wheel of his car, which had collided with a telephone post. He was probably a little under the influence of alcohol, but claims that he was perfectly at himself, and that he felt no pain at the time of the accident. He got out of his car, which was badly wrecked, and walked or stood around the scene of the accident for possibly half an hour. By this time he began to notice a dull, aching pain below his umbilicus, so he went home and went to bed. He called for his doctor, but failed to get him until next morning. The pain kept him awake all night, but was not severe enough to cause him to try to get someone in the place of the family physician. Sometime during the night he vomited food he had eaten at supper. The next morning the doctor came at about 9 o'clock and found him with temperature 100 degrees F., pulse 80. No nausea, no distention. Considerable abdominal soreness was present and some spontaneous pain. He had passed his urine which, according to his report, was normal in appearance. The patient was given a hypo of morphia gr. $\frac{1}{4}$ and was soon quite comfortable. At 3 p. m. he took an enema, which brought his pain back for a while. He got up, and though very sore, he walked into the bathroom, where he got some slight result from the enema. He was soon easy again and spent a fairly comfortable night. Next morning he was still sore over his abdomen, but he felt so well that he did not call the doctor, but took a dose of oil instead. Soon after taking the oil, the aching pain across the abdomen returned, and he then sent for his doctor once more.

I was called in consultation at 1:30 p. m. and found him with temperature 100, pulse 100, respiration 24. Abdomen distended and tender but not rigid. No vomiting or nausea. No very great abdominal pain, though he had a rather anxious expression. There was no evidence of the slightest contusion on the belly wall. He was advised to go to the hospital, and agreed to do so. He did not arrive until 4 o'clock, however, at which time

his temperature 101, pulse 124, respiration 24. Leucocyte count 15,500, urine normal, belly quite tender but not rigid. At 6 p. m., emesis of small amount of dark fluid; 7:30 p. m. perspiring freely and temperature $100\frac{3}{4}$. Some delay in getting facts before the family physician, but this was finally done, operation was promptly agreed on, and was performed at 8 p. m.

Median incision below the umbilicus under ether anesthesia. The structures of the belly wall as seen in incision were absolutely normal in appearance. Free purulent exudate in peritoneal cavity. Coils of small intestine in pelvis were distended, very dark, almost black in color in considerable areas, and more or less adherent to each other. The coils were handled carefully and search made for the rupture which was now suspected. Two openings were finally found near each other and near the mesenteric border of a coil of gut which was probably jejunum, as it was of good size and had little fat in the mesentery. The openings were not very large and the material escaping seemed mucoid in character. The perforations were at the upper extremity of the damaged area of gut, so when these were closed, no further search was made. The perforations were closed with continued catgut suture and then the abdomen was closed by Fowler's method of suture. (Fig. 8, silk worm gut sutures.)

I wish particularly to call the attention to the fact that no drain was put in. This patient made a complete recovery, though he had some infection of his parietal wound.

There are several points of interest about this case besides the fact that the patient got well. It shows that subparietal injury of the abdominal viscera may occur with less damage to the belly wall than would be considered possible on general principles, so to speak.

The evidences of perforation were so slow about developing that at the end of thirty-six hours the patient counted himself as practically well, and took a purgative to put the finishing touches to his cure. Even six hours after he had taken the oil it seemed impossible that he could have actually had perforation and I was prepared before opening abdo-

men to find hemorrhage from a torn mesentery rather than to find a leaking gut.

Twenty-four hours is set at the limit within which surgery can be done with any reasonable hope of benefitting a patient with gunshot wound of the abdomen. There is no essential difference from a surgical point of view between gunshot perforation and subparietal rupture of the viscera, yet I have never been called to one of the latter within twenty-four hours, and I have seen several cases, more private cases, in fact, than I have ever seen of gunshot wounds.

We must impress ourselves with the fact that subparietal visceral injuries occur when (soon after the accident) neither the history of the traumatism, the general appearance of the patient nor the findings on examination indicate any reasonable probability of their presence. We must also remember that in these cases it is a question of "look and see," not "wait and see," and just as much so as in gunshot wounds. There is an embarrassing difficulty about diagnosis in these cases, and some unnecessary incisions will of course be made, but then a negative exploration is less injurious than in many conditions suspected—typhoid perforation, for instance. Certainly these patients should be watched with every care, especial attention being given to the urine and to watching the leucocyte count, and under no circumstances should efforts be made, either by mouth or rectum, to move the bowels until ample time has passed to exclude rupture of the gastro-intestinal tract.

As to the matter of drainage to which I have already referred I wish to add that I heartily agree with two Englishmen. The first, whose name I have forgotten and whose article in the *British Journal of Surgery* I have been unable to locate, said words to the effect that a surgeon had not begun doing real abdominal surgery until he had learned not to drain. The other was Cuthbert Wallace, who in reporting 1,200 gunshot wounds of the abdomen in the *B. E. F.*, makes this statement in the *British Journal of Surgery*, Vol. 4, pages 6, 7 and 9, under the heading, "Abdominal Drainage:"

"Opinions differ about this, and personally I never use it, nor do I believe it has

any points to recommend it. When speaking of abdominal drainage, I mean the ordinary drain to pelvis or loin. It is quite another thing to tie a small drain to a suture line which one mistrusts, the idea being to form a local tract in case of a leak."

ALCOHOLISM AND WOOD ALCOHOL POISONING.

In the first four months of 1920, there occurred forty deaths among the industrial policy-holders of this company from wood alcohol poisoning incidental to the use of adulterated beverages. During the same time, there were only eighteen deaths reported from acute or chronic ethyl alcoholism. Wood alcohol poisoning is, under present conditions, a significant cause of death. How much the deaths from alcoholism, in the narrow sense, have been reduced is indicated by the fact that in the first three months of 1919 there were sixty-two deaths from these causes as against twelve this year. Similarly, alcoholic cirrhosis of the liver shows no deaths reported thus far this year, although there were seven in the first quarter of last year.

These figures are consistent with those reported by state and municipal health officers, as well as by hospital superintendents over the whole country.

Deaths from ethyl alcoholism are reaching their minimum, and a negligible death rate from this once important disease is within sight. It must be pointed out that the tendency toward decline in the alcoholism death rate antedates both war-time and constitutional prohibition.—Bulletin Metropolitan Life Insurance Co.

LETHARGIC ENCEPHALITIS.

A. Y. P. Garnett, Washington, D. C. (*Journal A. M. A.*, May 8, 1920), reports a case of pregnancy and labor complicated by lethargic encephalitis. The particularly interesting part of the case from an obstetric point of view was the apparently painless labor and the partial paralysis of the bladder, indicating that there may have been some destruction of the posterior nerve roots stimulating *tabes dorsalis*.

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EDITORIALS**WHY REPORT TO HEALTH OFFICERS?**

The law of the state of Tennessee, Chapter 519, Acts of 1905, requires: "That whenever any physician, surgeon or practitioner of medicine shall know or suspect that any person or persons whom they have been called to visit, or who have been brought to them for examination, or any other suspicious information received relative thereto, is or are infected, or even suspected, with the aforementioned diseases, he shall, and it shall be his duty to, immediately notify the health authorities of the town or county in which said diseased person or persons are found."

Somewhat clumsy English, perhaps, but nevertheless the law. The "aforementioned diseases" are the communicable diseases.

Why report cases of communicable diseases to health officers?

First, because it is the law that they shall be so reported.

Second, because prompt and accurate reports will make it possible for steps to be taken to prevent the dissemination of communicable diseases.

Third, because it will enable health departments to collect and compile helpful statistics.

Fourth, because it is the professional duty of a doctor to give all possible aid in the prevention of all disease.

Within the month two outbreaks of communicable disease, smallpox in the one instance and typhoid fever in the other, have been reported to the State Board of Health in two towns in Tennessee. The first case of smallpox was not reported to the local health officer, and eight or ten persons exposed had smallpox unnecessarily. The physician who

failed to report the first case is responsible for the development of all the other cases.

A large number of cases of typhoid fever have occurred in a Tennessee town within a period of six weeks. Some were reported by attending physicians, some were not. After more than fifty cases had developed the matter was reported to the State Board of Health. Measures were immediately applied which seem to have been responsible for bringing an end to the epidemic and which would have been equally efficacious could they have been applied earlier.

Your failure to report cases of communicable diseases may mean death to somebody, doctor, and your reports of such cases may save human lives. Think it over!

DR. WILLIAM CRAWFORD GORGAS.

Dr. William Crawford Gorgas, Major-General, U. S. A., former Surgeon-General and ex-President of the American Medical Association, died in Queen Alexandria Hospital in London on July 4, 1920.

Dr. Gorgas was born at Mobile, Ala., on October 3, 1854. He was a graduate of the University of the South, from which institution he received the A. B. degree in 1875. His M. D. degree was conferred by Bellevue Medical Hospital School upon the completion of the course of medicine in 1879. After securing an internship at Bellevue, Dr. Gorgas entered the army and spent his useful life in that service.

The most distinguished services of Dr. Gorgas were rendered in connection with the control of yellow fever in Havana and malaria and yellow fever in the Canal Zone. His co-workers in these fields have, perhaps, never received the recognition that the merit of their work deserved, but this fact does not in any way lessen the fame of Gorgas nor detract from the honors he won.

As Surgeon-General of the army during practically the whole period of the World War, Dr. Gorgas displayed marked executive ability and surrounded himself with capable men whose efforts played a large part in the wonderfully successful fight that was made against disease and in the splendid results attained in the surgical hospitals.

After the great war was over the services of Dr. Gorgas were eagerly sought by many governments. At the time of his death he was on his way to South Africa as the head of a commission to study certain endemic diseases and to devise means for combatting them. His funeral at St. Paul's Cathedral was with full military honors and his body is now being brought to his native land for burial.

Among the names of all the illustrious sons of the South whose work has benefited humanity in the whole world that of Gorgas will always be found among the first.

STATE BOARD OF MEDICAL EXAMINERS.

The State Board of Medical Examiners met in annual session at Nashville on July 5. According to information at hand, there were about eighty-five or ninety applicants for license to practice medicine in Tennessee who came before the Board of Examiners this year and nearly all of them passed examination successfully.

The entire membership of the Board was present at the meeting at Nashville: Dr. Ambrose McCoy, Jackson, President; Dr. A. B. DeLoach, Memphis, Secretary; Dr. C. A. Abernathy, Pulaski; Dr. B. L. Simmons, Nashville; Dr. Nat Dulaney, Bristol; Dr. W. R. McCreary, Knoxville.

We understand that the number of applicants for license to practice medicine in Tennessee is very far below the average for a long period of years.

NOTES AND COMMENT

Dr. S. T. Parker, Lexington, was married on July 7 to Miss Elizabeth Adams Singleton, daughter of Dr. and Mrs. T. Hendricks Singleton, at Bowling Green, Ky.

Dr. Geo. A. Hays, Director of the Division of Venereal Diseases of the Tennessee State Board of Health, was married on June 30 to Miss Margaret S. Long, at Philadelphia.

The Henderson County Medical Society had its annual outing at Hinson Springs on July 8. Several guests from Memphis, Jackson and Nashville were present and presented papers.

Don't forget to file birth certificates with Local Registrars. A list of these Registrars is being printed in the Journal.

Dr. J. J. Durrett, recently appointed City Health Officer for Memphis, began his new duties on July 1. The Memphis health department is to be reorganized and operated along modern lines. Dr. Durrett comes to Tennessee from Virginia.

Dr. Bryce Runyon, of Clarksville, was married at Battle Creek, Mich., on July 10 to Miss Louise Markley.

There are still many of our 1919 members whose names have not yet been reported by their county secretaries for 1920 enrollment.

BOOK REVIEW.

Surgical Shock and the Shockless Operation Through Anoci-Association. By Geo. W. Crile, M. D., Professor of Surgery, and Wm. E. Lower, M. D., Associate Professor of Genito-Urinary Surgery, Western Reserve University, Cleveland. Second Edition of "Anoci-Association." Thoroughly revised and rewritten. 272 pages, illustrated. W. B. Saunders Co., Philadelphia.

Experience gained in both military hospitals and in civilian clinics since the appearance of the first edition of "Anoci-Association" has more thoroughly convinced the authors of the soundness of their conclusions as set forth in their first publication. Discussion of the various theories of shock is omitted from this volume, except for the kinetic theory. The old term, "anoci-association" has been abandoned for "anociation." "The Cause and Pathology of Surgical Shock," "The Clinical Phenomena of Shock," "Anociation," "Shock and Exhaustion in Military Surgery," are the headings of the several chapters preceding several others dealing with anociation as applied in various surgical conditions. There is then a chapter on "The Transfusion of Blood," one on "Anaesthesia," and a "Summary." The authors maintain their position with respect to the nature of shock and the best methods for its prevention with vigor and with what seems to be logical argument and convincing statement of experiences gained. Those who have read former publications by these authors should also read this book.

MISCELLANEOUS

RULES AND BY-LAWS OF THE STATE BOARD OF HEALTH (Continued).

Communicable Diseases.

Every case of infectious or communicable disease is primarily the source of infection from which other cases may directly or indirectly develop, and efficient measures taken to prevent the spread of infection from them will accomplish the best results.

The early recognition and immediate notification of the communicable diseases by the physician is the foundation upon which work for their control is based.

It is the function of the health officer to prescribe and enforce measures for prevention and spread of infection, and this should be done by co-operation with the attending physician and citizens.

Notifiable Diseases.

Every physician practicing in the state of Tennessee who shall treat or examine any person suffering from, or afflicted with, actinomyces, acute anterior poliomyelitis, anthrax, Asiatic cholera, cerebrospinal meningitis, chicken-pox, diphtheria, gonorrhea, influenza, leprosy, malarial fever, measles, ophthalmia neonatorum, pellagra, plague, pneumonia, rabies, scarlet fever, smallpox, syphilis, tetanus, trachoma, tuberculosis, typhoid fever, typhus fever, whooping cough, yellow fever shall forthwith make a report in writing to the municipal or county health officer having jurisdiction upon blanks supplied for that purpose, in which report he shall, over his or her signature, state the name of the disease, and the name, age, sex, color, nativity, and occupation, if any, of the person suffering therefrom together with the street and house number of the premises in which said person may be located, or otherwise sufficiently designate the same, the date of the onset of the disease, together with such other information relating to such case as may be required by said health authorities and the State Board of Health.

When there is no physician in attendance upon any case of communicable disease mentioned, it shall be the duty of any person hav-

ing knowledge of the same, by reason of attendance, or upon whose premises a case of such disease is suspected to exist, to make a report as specified.

Quarantine, Isolation and Observation.

The following degrees of control are to be carried out in all cases of communicable diseases declared notifiable: Quarantine, Isolation and Observation.

Quarantine.

Quarantine is defined to mean and include: (a) Strict isolation of the person sick and of those attendant upon him.

(b) Absolute prohibition of entrance to or exit from a building of any person except the attending physician, health authorities, or any person or persons especially authorized by the health authorities.

(c) The following named diseases shall be placed under quarantine: Diphtheria, cholera, plague, scarlet fever, smallpox, typhus fever, yellow fever.

Isolation.

Isolation is defined to mean and include:

(a) Complete separation of the person sick with the communicable disease and those attendant upon him, from all other persons on the premises. A room screened against flies and mosquitoes should be used whenever possible.

(b) Prohibition of entrance to and exit from a building except against certain members of the family authorized by the health authorities under certain definite restrictions. Persons permitted ingress and egress under this regulation, who do not come in contact with the sick, may go about their occupations, providing they do not bring them in contact with assemblages of children. They must also refrain from visiting places of amusement or worship or schools.

(c) The following named diseases shall be placed under isolation:

Acute anterior poliomyelitis, cerebrospinal meningitis, leprosy, measles, typhoid fever.

Observation.

All other communicable diseases which the State Board of Health does not require to be quarantined or isolated shall be under the observation of the municipal or county health officer, who shall take such steps as he may

deem necessary to prevent their becoming dangerous to the public health.

Placarding of Premises.

On the premises where a case of communicable disease exists subject to quarantine or isolation, there shall be posted in conspicuous places, both at the back and front of the house or apartment, placards bearing the name of the disease in large letters with the following warning: "All persons are by this means notified of the presence of the above disease, and are warned of the danger of coming in contact with it. It is unlawful to deface, mutilate, cover up or to remove this card without the authority of the health officer."

The placard shall not be less than six inches in width and ten inches in length.

In the case of scarlet fever, the color of the placard shall be red; of diphtheria, blue, and of smallpox, yellow. For all other diseases the color shall be white.

Acute Anterior Poliomyelitis.

Quarantine; Reports.—Every physician, attendant, parent, householder or other person having knowledge of a known or suspected case of acute anterior poliomyelitis (infantile paralysis) must immediately report the case to the municipal or county health officer, who shall at once notify, by telegraph, the Secretary of the State Board of Health, message to be sent collect.

Placarding.—Whenever a case of acute anterior poliomyelitis is reported to the municipal or county health authorities, they shall affix in a conspicuous place at each outside entrance of the building, house or flat, as the case may be, a placard displaying the name "Infantile Paralysis." Defacement of such placards or their removal by any other than the municipal or county health authorities or the duly authorized representatives of the State Board of Health is strictly prohibited.

Quarantine of Patient.—All cases of acute anterior poliomyelitis must be quarantined for at least six weeks. Quarantine must not be raised, however, until the premises have been thoroughly disinfected under the supervision of the county or municipal health officer, or a duly licensed physician delegated by the municipal or county board of health. All persons continuing to reside on the infect-

ed premises shall be confined to the infected premises until quarantine has been raised, except as hereinafter provided.

No one but the necessary attendant, the physician, the health officer and representatives of the State Board of Health may be permitted to enter or leave the premises. Upon leaving they must take all the precautions necessary to prevent the spread of the disease. The nursing attendant may leave the premises only on permission granted by the authorized health officer.

Quarantine of Exposures.—Members of the family over 16 years of age may be removed from the infected premises, upon permission granted by the municipal or county health officer after thorough disinfection of person and clothing.

Children of the family may be removed from the infected premises upon permission granted by the authorized health officer, after thorough disinfection of clothing and person. Such children may be removed only to premises upon which none but adults reside, and must be confined to the premises (in the house) from two weeks from date of removal, during which period they must be kept under observation by the authorized health authorities, and no child shall be permitted to visit or otherwise come in contact with them during this period. They must not return to the infected premises nor come in contact in any way with the patient or attendant, until quarantine has been raised.

All children who continue to reside on the infected premises must be held under close observation for at least two weeks following termination of the last case on the premises.

Exclusion from the Schools, Etc.—All children who continue to reside in the infected premises must be excluded from the schools and other public gatherings for at least two weeks following the raising of quarantine.

All children who have been exposed to the disease and who have been removed from the infected premises, in accordance with the provisions of the above regulation, must be excluded from the schools and from all public gatherings for at least two weeks from date of last exposure.

The patient must be excluded from the

schools and all public gatherings for at least two weeks after quarantine is raised.

School teachers and other persons employed in or about a school building, who have been exposed to the disease, must be excluded from the school buildings and grounds for a period of two weeks following the date of last exposure and until persons and clothing have been thoroughly disinfected.

Whenever the schools are closed on account of an outbreak of acute anterior poliomyelitis, children under 16 years of age shall be excluded from Sunday schools, churches, picture shows and all public gatherings and shall be confined to their own premises.

Precautions.—No person, except the necessary attendant, the physician and the health officer may be permitted to come into contact with the patient. Such persons must not handle or prepare food for others, and their intercourse with other members of the family must be as restricted as possible.

The infected premises, especially the sick room, shall, when possible, be thoroughly screened against flies and any such insects as may enter the sick room shall be exterminated therein. All toilets used by the patients or attendants and those in which discharges from the patient are deposited must be thoroughly screened against flies and freely treated with an approved disinfectant.

Removals.—No person afflicted with acute anterior poliomyelitis shall be removed from the premises upon which he is found unless consent of such removal be first obtained from the municipal or county health authorities or the State Board of Health, and then only after strict compliance with the provisions of these regulations. Under no circumstances shall permission be granted for the removal of any patient or article from the infected premises to any premises upon which milk or other food stuffs are produced, sold or handled.

No person afflicted with acute anterior poliomyelitis shall be removed from any city, village, or county in which he is found, unless consent to such removal be first obtained from the State Board of Health.

Sale of Milk and Other Food Stuffs from Infected Premises Prohibited.—Whenever a case of acute anterior poliomyelitis shall

occur on any premises where milk or other food stuffs are either produced, handled or sold, the sale, exchange or distribution on such premises in any manner whatsoever, or the removal from the infected premises of milk, cream, and milk products or other food stuffs until the case has been terminated by removal, recovery, or death, and the premises and contents and all utensils have been thoroughly disinfected under the supervision of the authorized health authorities, is prohibited. Provided, that in the event of acute anterior poliomyelitis occurring on a dairy farm the live stock, the properly sterilized milk utensils and delivery outfit, may be removed to some non-infected premises and the milking done and the milk cared for and sold from such other premises by persons other than those of the household of the person affected, upon obtaining permission to do so from the county or municipal health authorities or the State Board of Health.

Whenever a case of acute anterior poliomyelitis shall occur on premises connected with any store, such store shall be quarantined until the case has been terminated by removal, recovery or death, and the premises are thoroughly disinfected; provided, however, that if the premises are so constructed that the part in which the case exists can be and is effectively sealed, under the supervision of the county or municipal health authorities, from the store, and provided further that the employes and all other persons connected with the store do not enter the part of the premises where the case exists and do not come in contact with the patient, his attendant, or any article whatsoever from the quarantined premises, the store attached to the quarantined premises need not be closed.

Delivering of Milk, Groceries and Other Necessities.—Milk, foodstuffs and other necessities may be delivered at the quarantined premises, but there must be no contact between the patient or attendant and the delivery agent. The householder must provide a sterilized container (a freshly scalded bottle or pail) to receive the milk, and the delivery agent must not handle this bottle or pail in making delivery.

No milk bottle, basket or any other article whatsoever may be taken out of or away

from the infected premises during the period of quarantine. Before milk bottles are removed from the premises after quarantine is raised they must be sterilized under the direction of the county or municipal health authorities. Mail which has been handled by the patient or attendant must not be taken away from the premises.

Disinfection.—All articles taken from the sick room must be disinfected upon removal. Exposure in the open air of rugs, carpets, curtains, bedding and similar articles from the infected premises for the purpose of airing, shaking, beating or sunning is strictly forbidden, unless, in the opinion of the municipal or county health authorities such may be done without danger of the spread of the disease.

Books, toys, and other similar articles used to amuse the patient are best disposed of by burning. Under no circumstances should borrowed books or toys be returned—they must be burned. Library and school books must not be returned; they must be burned.

Bed and body linen which has been in contact with the patient, and handkerchiefs or cloths which have been used to receive discharges from the patient must be immersed in an approved disinfectant before removed from the sick room, and after removal should be boiled.

All discharges from the patient must be thoroughly disinfected before removal from the sick room.

No article of clothing, or other article, may be removed from the infected premises to a laundry or other place for washing unless previously disinfected by immersing in an approved disinfectant, and the approval of the municipal or county board of health has been obtained.

House animals such as cats, dogs or any other household pets and all other animals or fowls must be strictly excluded from the infected building, house or flat, as the case may be, during the entire period of quarantine. Any such animals which have been in contact with the patient must be subjected to a thorough disinfecting bath before removal from the infected building, house or flat, and must not be permitted to re-enter the same. Such animals must be confined in

an outbuilding. Dogs and cats running at large should be destroyed.

Before quarantine is raised the infected premises and all articles of furniture and clothing therein must be thoroughly disinfected by or under the supervision of the municipal or county health authorities in a manner approved by the State Board of Health.

Deaths, Burials and Transportation of the Dead.—When the body of anyone dead from anterior poliomyelitis is to be transported by railroad or other common carrier, the official rules of the State Board of Health governing the transportation of dead bodies must be observed.

Note.—The term, “authorized health officer,” as it appears in the foregoing regulations, shall be construed to mean any member or properly appointed representative of the State Board of Health, the municipal or county health officer, and any legalized and qualified physician who shall be deputized by the municipal or county board of health, or properly appointed health officer.

(To Be Continued.)

BILATERAL SYMPATHETIC OPHTHALMOPLEGIA.

William B. Cadwalader, Philadelphia (Journal A. M. A., May 8, 1920), in commenting on the diagnostic importance of the occurrence of bilateral sympathetic ophthalmoplegia in cases of lethargic encephalitis says that bilateral involvement of the sympathetic fibers of the eyes can be caused only by a diffuse or inflammatory lesion of the brain stem, so that when it is associated with the characteristic mental confusion of lethargic encephalitis it should be regarded as a diagnostic sign of that disease. However, because of the bilaterality of the narrowing of the palpebral fissures and contraction of the pupils, it is not likely to attract attention and is overlooked; but when it occurs only on one side at the time, the contrast quickly directs attention to it. Bilateral sympathetic ophthalmoplegia is not known to occur in other diseases.

TYPHOID IMMUNIZATION

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LOCAL REGISTRARS OF VITAL STATISTICS (Continued).

Lake County.—Town of Tiptonville, Civil District No. 2, outside of Tiptonville, Civil Districts Nos. 3, 1, 7 and 4, L. H. Harris, Tiptonville; Town of Ridgeley, Civil District No. 5, outside of Ridgeley, and Civil District No. 6, W. F. Hooper, Ridgeley; Civil District No. 8, Mrs. Chas. Philippi, Phillippi, Tenn.

Lauderdale County.—Civil Districts Nos. 1, 2, 6, 11, 15 and 7, R. C. Johnson, Ripley; Civil Districts Nos. 3, 10 and 13, W. H. Jordan, Henning; Civil District No. 4, W. H. Volkmar, Cherry; Civil District No. 5, Mrs. Sara Johnson, Gold Dust; Civil District No. 8, Bruce Kinley, Route 3, Halls; Civil District No. 9, G. W. Woodward, Halespoint; Town of Gates, Civil District No. 17, outside of Gates, Miss Ruby Rhodes, Cherry; Town of Halls, Civil Districts Nos. 12 and 16, Fred Hurt, Halls; Civil District No. 14, W. H. Critfield, Route 4, Ripley.

Lawrence County.—Civil District No. 1, E. F. Brewer, Iron City; Civil District No. 2, Dr. A. D. Cole, Loretto; Civil District No. 3, Oscar Crowder, Appleton; Civil Districts Nos. 5 and 4, Dr. W. C. Harris, Leoma; Civil Districts Nos. 7, 8 and 9, Mrs. Milus North, Lawrenceburg; Civil Districts Nos. 14 and 10, D. M. Foster, Ethridge; Civil Districts Nos. 11, 12 and 13, E. E. Phelan, Summertown; Civil Districts Nos. 6 and 15, W. H. McCrory, West Point.

Lewis County.—Civil District No. 1, A. C. Brown, Hampshire; Civil Districts Nos. 2 and 8, J. J. Baker, Napier; Civil Districts Nos. 3, 6, 7, 9 and 10, R. W. Grimes, Hohenwald; Civil Districts Nos. 4 and 5, Mrs. E. F. Schacte, Gordonsburg.

Lincoln County.—Civil Districts Nos. 1, 20 and 13, Dr. J. P. Farrar, Route 8, Fayetteville; Civil Districts Nos. 2 and 18, C. C. Faulkinberry, R. F. D., Taft; Civil Districts Nos. 3 and 22, Dr. E. W. Dickey, Route 2, Kelso; Civil Districts Nos. 4, 23 and 25, Mrs. J. B. Goodwin, Flintville; Civil Districts Nos. 5 and 6, J. T. Graham, Mulberry; Town of Fayetteville, Civil District No. 8, outside of Fayetteville, and Nos. 7, 12 and 21 and 9, C. F. Higgins, Fayetteville; Civil District No. 11, E. C. Forbes, Howell; Town of Petersburg, Civil District No. 10, Mrs. C. P. March, Petersburg; Civil Districts Nos. 14 and 15, Dr. Jno. E. Sloan, Boonshill; Civil District No. 19, Dr. J. D. Bryant, Route No. 8, Fayetteville; Civil District No. 24, J. A. Pylant, Elora; Civil Districts Nos. 16 and 17, Dr. B. A. Sherrill, Coldwater.

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Macon County.—Town of Lafayette, Civil District No. 1, outside of Lafayette, Mr. W. G. Reid,

LaFayette; Civil District No. 2, N. P. McDonald, Ruote 2, Lafayette; Civil District No. 3, Aubrey Sloan, R. F. D., Hartsville; Civil District No. 4, E. L. McDonald, Meadorville; Civil District No. 5, J. W. Bohannon, Jr., Route 4, LaFayette; Civil District No. 6, W. J. Smith, Red oBiling Springs; Civil District No. 7, Dr. A. Y. Kirby, Route 2, LaFayette; Civil District No. 8, S. L. Gregory, LaFayette; Civil District No. 9, T. T. Tucker, LaFayette; Civil District No. 10, W. F. Jenkins, Route 5, LaFayette; Civil District No. 11, W. P. Simmons, Route 1, LaFayette; Civil District No. 12, H. A. Claiborne, Route 1, Hartsville; Civil District No. 13, Mr. V. F. Bradley, Route 1, Westmoreland.

McMinn County.—Town of Niota, Civil District No. 1, outside of Niota, Dr. Jos. McGahey, Niota; Town of Athens, Civil District No. 2, outside of Athens, T. H. Griffin, Athens; Town of Etowah, Mrs. Callie Rains, Etowah; Civil District No. 5, Dr. J. L. Basinger, Riceville; Civil District No. 6, Mrs. Lena L. Sivils, Calhoun.

The essential features of the method employed by Gustav Kolischer and J. S. Eisenstaedt, Chicago (*Journal A. M. A.*, March 20, 1920), are mattress sutures of the bladder wall with inversion of the mucosa edges, which union is re-enforced by whipping over a simple continuous suture, and thorough subfascial drainage accomplished by placing a narrow rubber tube under the fascia of the recti and parallel to the incision. The ends of this tube are brought out at each end of the skin wound. The bladder is opened by suprapubic cystotomy in the usual manner. The seat of the tumor is freely exposed by retractors made of fiber or hard rubber, and the coagulation is thoroughly accomplished by the galvanocautery or by diathermy. The bladder and abdominal wall are then closed completely, except for the subfascial drainage. The patient, after operation, urinates spontaneously or is catheterized at regular intervals. A permanent catheter is not used because of the danger of urethritis, vesical irritation and ascending infection. If cystitis occasioning marked or moderate symptoms is present, 20 per cent argyrol solution, is instilled into the bladder twice a day. The subfascial drainage tube is removed after twenty-four hours. The bladder incision and abdominal wound are usually entirely healed in seven or eight days.

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OCULAR MANIFESTATIONS OF GEN- ERAL DISEASES.*

By E. C. Ellett, B. A., M. D.,
Memphis.

That certain conditions in other parts of the body can manifest themselves by demonstrable changes in the eyes is nothing new, and the presentation of a few cases to illustrate this well known fact is made principally for the purpose of reminding the members of the society that the creation of a separate section for the consideration of the diseases of the eye and neighboring organs does not mean a lack of recognition of the position which these diseases occupy in relation to other diseases of the body, nor of the relation of the members of that section to the other members of the society. These organs are a part of the body, and their diseases are closely connected with other diseases of the body, and only an erroneous and narrow conception of the true state of affairs could lead to any other conclusion.

It has long been known that diseases of the cardio-vascular renal system may produce demonstrable changes in the retinal circulation. When we remember that only in the eye ground can the vascular system be seen and studied as it functions under normal conditions, the importance of the examination of the eye ground to the internist will be appreciated. The changes that can be seen are much more delicate than those to be detected by the sphygmomanometer and cardiograph, and

while in no sense taking the place of those instruments, the ophthalmoscope is a valuable adjunct to them. It is unfortunate that these changes are not readily detected and correctly interpreted except by those who are making such examinations daily. It is not intended to deter the occasional user of the ophthalmoscope from looking for these changes, but to warn him against being too ready to give a serious meaning to changes which he thinks he sees, but which are often so delicate as to require interpretation by one who is really an expert. The analogy to the microscope is very good, since the occasional user of this instrument in a clinical laboratory realizes the need of appealing to the expert microscopist to pass on such a question as that of the malignancy of a tumor.

These well known changes are merely referred to by way of introduction, as the cases to be reported are of an entirely different nature. From much material that might have been utilized, two classes of cases will be mentioned, since they will serve to emphasize the importance of the ocular manifestations of other diseases, and also because the cases are of considerable interest in themselves.

The first group will be illustrative of a subject now attracting much attention, namely focal infection. As far as the eye is concerned one class of cases is so much the more often the result of an infection in some other part of the body, that it almost stands as the only one suggesting such a cause. That is inflammatory affections of the iris and choroid, the so-called uveal tract. It used to be stated that about one-half of such cases were due to syphilis and one-half of the remainder to

*Read at annual meeting of Tennessee State Medical Association, at Chattanooga, April, 1920.

rheumatism. Syphilis certainly remains ahead of all other single causes, but improved laboratory and radiographic technique, as well as a better conception of the causes of disease, is apt to modify this and many other time-honored statements. Inflammation of iris and choroid usually suggests an inquiry as to (1) syphilis, and (2) focal infection. Of the latter, the outstanding localities to be carefully scrutinized are the nasal sinuses, the teeth, the tonsils and the prostate gland. This does not exhaust the possibilities, as for instance, the intestinal tract, and in the case of choroiditis tuberculosis must be considered.

This sketchy outline will serve as the introduction for some case histories in tabloid form. It is only intended to report the cases in a general way, and to mention only the essential points, without the attention to ophthalmological detail which, however appropriate before the special section, would not be either interesting, entertaining or instructive to those not practicing ophthalmology.

Case 1. Mr. H. was seen for the present illness on May 13, 1919, he being then 56 years old. I had examined his eyes for glasses at intervals for twenty years, and know that they were always healthy. In January, 1919, he complained that the left eye was painful, but the vision was normal with the correction of his error of refraction and presbyopia. He shortly developed what he called rheumatism, and went to the Hot Springs of Arkansas and was treated. While there the eye got worse, was diagnosed iritis, and he had had the usual treatment for iritis from several men since then. The left eye showed vision 2-200, anterior chamber deep, pupil partly dilated cornea steamy, some pigment deposits on the lens capsule, and an increase of tension. The right eye was normal. General physical examination, Wassermann, urine, etc., negative. The diagnosis of irido-choroiditis with increase of tension was made, and the treatment continued without important modification. When asked about his teeth, he said that they had all been extracted, but as he did not improve, and as the nose and throat did not show any diseases, the jaws were radiographed and a root was found in the upper jaw to the left of

the median line, with a granuloma at the end, as seen in the radiogram. This root was extracted May 28. The next day the eye was better, and on June 1 was free from redness and the tension much reduced. June 24th, vision 2-3, and the eye ground, which had been obscured by vitreous opacities, was seen. July 10th, vision and tension normal. There was no radical change made in treatment from what he had been getting for six months and I think the recovery can be fairly attributed to the extraction of the root and the removal thereby of what appeared to be the starting point of the disease.

Case 2. R. H., aged 72, was referred to me in June, 1919, by Dr. Grace Tankersly, of Pine Bluff, Ark., for impaired vision of the left eye of two months' duration, due to exudative choroiditis. The vision was one-fourth in the right eye, and one-fifth in the left, the defect in the right eye being largely corrected by glasses. He had been under local and general treatment, but the eye had not improved. The choroiditis was found to be an expression of infection from the teeth and tonsils, the radiographs showing three special granulomata and two necrosed roots, and there were evidences of chronic tonsillitis. The Wassermann and urine were negative. The offending teeth and tonsils were removed in July, and in a month the vision in the left eye was almost normal.

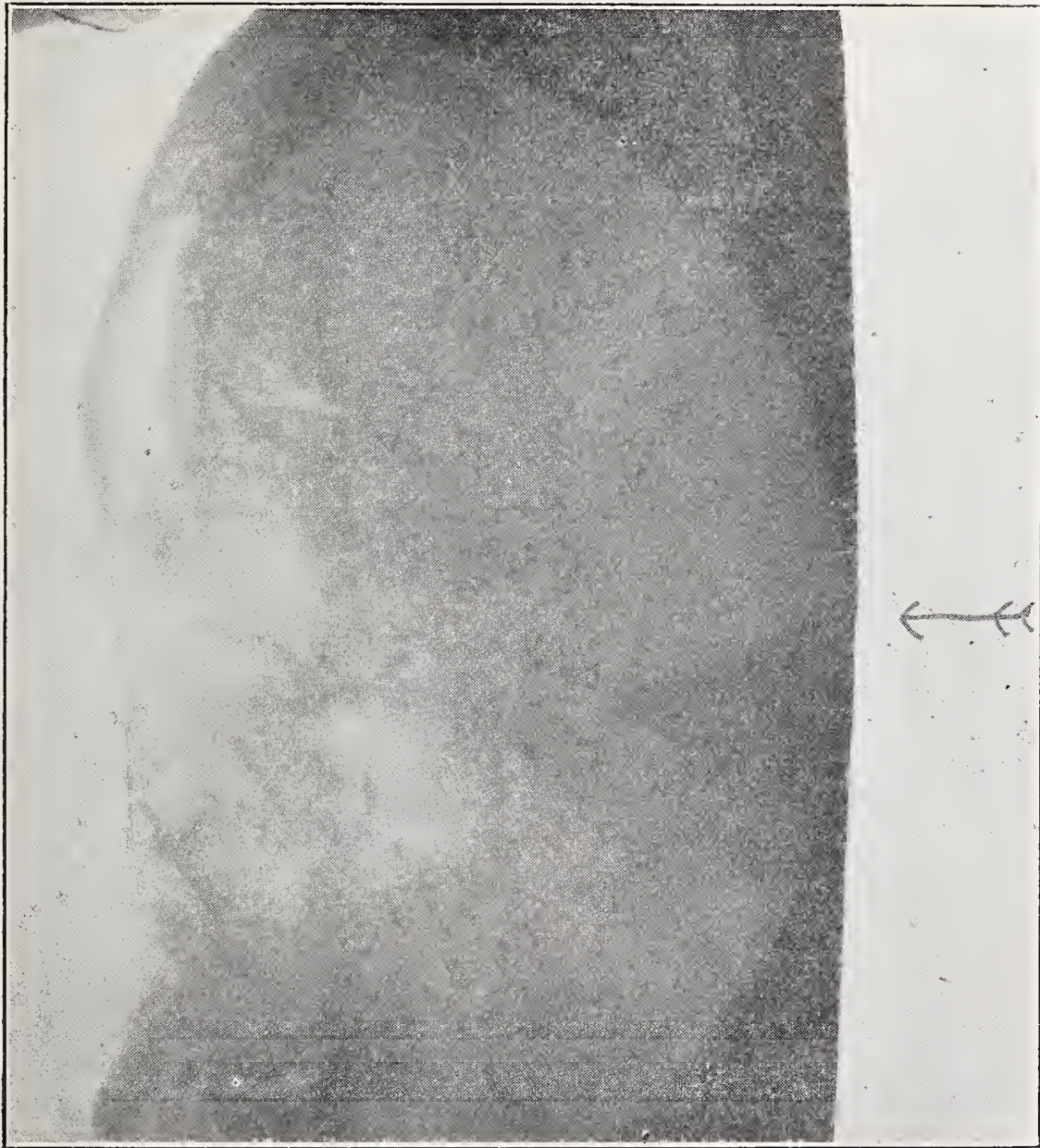
In contrast to these two cases in which the search for the cause of the trouble seemed to yield satisfactory results, I would like to record a case in which this was not true, because it would not be according to experience to give the impression that one can, even usually, be sure as to the site of the original trouble.

Case 5. Miss E., aged 32, had been an occasional patient of mine since 1896. In 1906 I had removed her tonsils and adenoids, the result being very good even when judged by what we seek to attain today. In March, 1916, she came for an impairment of vision in the left eye which had come on while she was visiting elsewhere, seven weeks previously. When I saw her she had been through the hands of Dr. Calhoun of Atlanta and Dr. de Schweinitz of Philadelphia, who were unable to assign a cause for the large vitreous

opacities, which seemed to be organizing hemorrhages, in the left eye. All of the usual tests of blood, urine, teeth, etc., had been made, and all were repeated by me, with only one suggestive finding, a tooth, which was removed. I would like to specifically mention that the Wassermann and tuberculin tests

after a moment's thought he replied, "Very seldom."

The second group of cases to which I wish to refer are those diseases of the central nervous system where the ocular manifestations are of great assistance in arriving at a conclusion, not only as to diagnosis, but also as



Lateral radiograph, showing, opposite the arrow, the enlarged sella turcica, suggestive of pituitary disease.

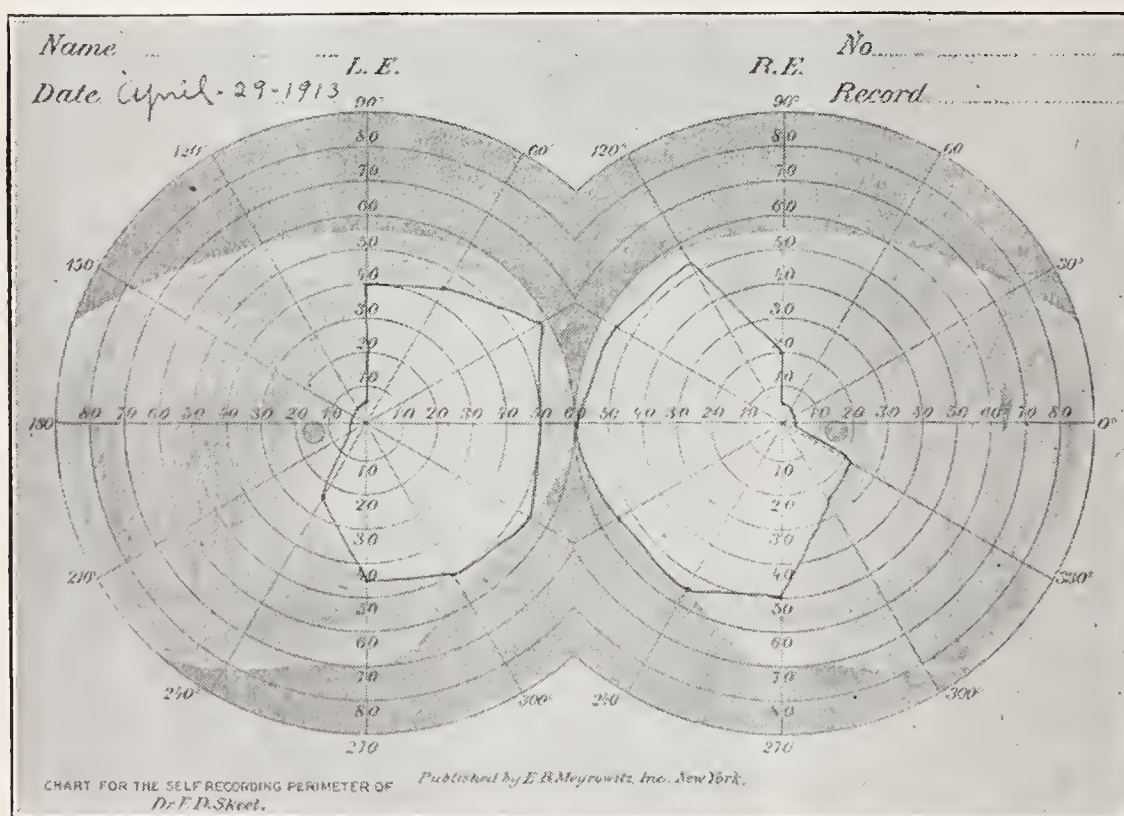
were negative. There was slight anemia. The treatment followed was rather empirical, eliminating and supporting treatment and rest, and whether due to this or not, the vision improved and became normal in six months, after very gloomy prognoses had been given by all who saw the patient. I asked one of the consultants how often he was able to assign a satisfactory cause in such cases, and

to treatment. The character of the cases, representing well known types, will be sufficiently detailed in the case reports, without the necessity of any generalizations.

Case 4. H. K., aged 18, was seen in consultation with Dr. Leon Meyer in September, 1911, for constant frontal headaches and blurred vision. The vision was slightly reduced and there were retinal hemorrhages in

both eyes. A week later distinct optic neuritis developed, with double vision and slight drooping of the right upper lid. It was largely on these symptoms that a diagnosis of intracranial tumor was made, although there were other symptoms such as the headache, nausea, dizziness and vomiting without nausea. A decompression operation was done one month after the onset of the symptoms, in October, 1911, by Dr. Harvey Cushing, and the result of this was that the symptoms all disappeared

of spells which she described as fainting spells, and which her physician described as hystero-epilepsy. I did not see her in one of them and cannot describe them. There was nothing new to be seen in the left eye, but as the middle turbinate on that side seemed to be enlarged and pressing against the nasal wall and septum, the tip of it was removed by Dr. John Shea. There was improvement in the pain, but it returned in October, with more general headache, optic neuritis, some motor disturbance in the right side of the



Fields of vision, taken when patient was first seen, showing bi-temporal hemiopia, characteristic of pituitary disease.

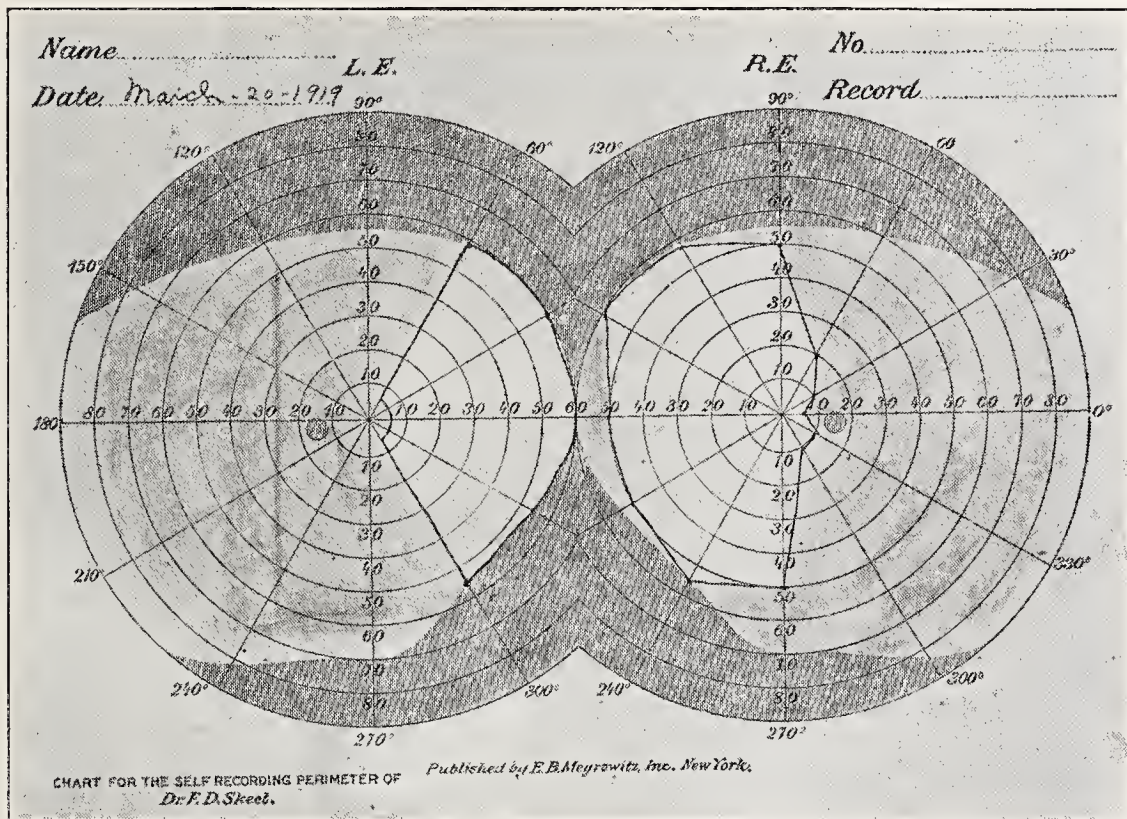
and the patient was apparently cured. He is now and has been, at work, and I have repeatedly examined his eyes, and they show no sign of the trouble.

Case 5. Miss M. was fitted with glasses by me in 1910, she being very nearsighted. The vision in the left eye was very poor, the eye diverged and was not used in vision, but there was nothing the matter with it except the nearsightedness. In 1913 she complained of pain in and behind the left eye, that is the bad eye, but there was nothing in the eye or nose to explain the pain, which was relieved by Fowler's solution. In August, 1919, this pain returned, with a tendency to some sort

face, aphasia and a convulsion. These symptoms did not appear all at once or all together, but developed while she was under observation in the hospital. The diagnosis of tumor being justified, a decompression operation was done in the left fronto-temporal region by Dr. Eustace Semmes, and a large irremovable, vascular tumor found in that region. The operation was followed by improvement in all the symptoms. The headache, paralysis of the face, speech and optic neuritis were relieved, and she was well enough to go about alone and went home. She developed a hernia cerebri, and died after a febrile illness, diagnosed typhoid, in March, 1920.

Case 6. H. H., a boy of 5, was seen in May, 1919. As an evidence of some disturbance he tilted his head to the side and at times the left eye turned in. He was examined by many men in many places and the learned opinions expressed and the technical letters exchanged in regard to the case would fill a book. The diagnosis of tumor was made largely on the symptoms, which later included an optic neuritis of very low degree, and the reactions to the Baranay tests as carried out by Dr. Levy

began to fail, and in September, 1919, it was entirely lost. For the past week the vision had been failing and there was occipital headache for the same length of time. There was no recent illness except influenza in January, 1919. The hearing was found to be affected by nerve deafness, and was entirely lost. The eyes showed dilated, but equal and active pupils, and an extreme degree of "choked disk," the swelling in each nerve head being more than 2 mm. The vision was slightly reduced, fields normal. The general examination gave



Fields of vision in case of pituitary struma, taken six years after a hypophyseal decompression operation.

and Dr. Bunting. A decompression operation was made by Dr. Harvey Cushing in December, 1919, and he found a "massive, slow-growing endothelioma completely wrapped around the right side of the brain stem, and with the central mass directly over the fourth ventricle. Unfortunately it was an irremovable tumor." The patient is still living. The findings bore out the opinions of the gentlemen to whom I have referred, with which the wises men of the East cannot be said to have agreed.

Case 7. O. M., aged 20, was examined at the request of Dr. B. F. Turner on March 3, 1920. About a year before this the hearing

very little additional information, and it was largely on the eye and ear symptoms that the diagnosis of intra-cranial tumor was made, and operation was decided upon as a means to relieve the intra-cranial pressure, without which the vision would probably be permanently damaged. A decompression operation was done in the left sub-temporal region on March 27th. The dura was found very tense and not pulsating. After lessening the tension by lumbar puncture, the dura was incised and the lateral ventricle drained. The tumor was not seen and is thought to be basal. There has been no appreciable change in the eye or ear symptoms so far.

Case 8. Mrs. D. was fitted with glasses by me in 1911, she being then 44 years old. The vision in the left eye was very poor, but this fact was not known to the patient till it was demonstrated at this test. The eye grounds were normal and the eye was thought to be an amblyopic eye, such as we often see. There was no further complaint for two years, when she found that the vision of the right eye was failing. The left eye was unchanged, but the right, which had had normal vision, was now reduced to one-third, and the nerve was slightly atrophic. The visual fields were so characteristic that they are shown as typical examples of the visual fields in pituitary disease. The lady's face had certainly changed in the past two years, the features being coarse and the face slightly edematous. The fingers were large and long, but she said she had worn the same size shoe for three years, in fact some of the same shoes. Radiographs showed an enlarged sella turcica, as may be seen in the picture, and also the phalangeal changes characteristic of acromegaly. In this diagnosis Dr. Somerville agreed, and expressed surprise that the diagnosis should be first made from the eye symptoms. She was advised to have an operation, and this was done by Dr. Cushing in July, 1913. The vision in the right eye improved to almost normal, and after seven years remains good, the other symptoms of acromegaly being also arrested. The visual fields, and the vision of the left eye, are unchanged.

Case 9. Mr. H. came to my office in February, 1919, complaining of double vision of two weeks' duration. I was not in the office at that time, and did not see him until June, when the condition, which had been a paralysis of the right inferior rectus muscle, had changed, and the left internus was affected. This has changed several times since then, and very greatly, and he has shown at times paralysis of nearly every extra-ocular muscle. For instance, in December, 1919, he developed ptosis of the right upper lid, and the eye was absolutely fixed, there being no motion except rotation. The left eye could not be turned out, and the motion inward was very much restricted. The vision has never suffered, the pupils and eye grounds have been always nor-

mal. He has no other symptoms. He has been carefully studied in conjunction with Dr. Somerville, and the neurological examination is negative, as are the blood and spinal fluid Wassermanns. The visual fields are normal. His teeth showed infection at two roots, which were extracted, and he also had pyorrhœa, which was treated and cured. We now lean to the opinion that this is a case of myasthenia gravis.

DISCUSSION.

Dr. Louis Levy, Memphis: This paper is indeed a very interesting one, as it brings before you the many aids to diagnosis from an ophthalmologist's standpoint. It is not necessary to dwell upon the fact that often the first signs of diseases of the kidneys are seen in the eyes, because you are all pretty well acquainted with same. Dr. Ellett, in his case reports, has demonstrated many cases in which the eye symptoms were due to lesions in different parts of the body. The point that I wish to especially bring out and for you to bear in mind is that you have two distinct types of nystagmus. One, a true nystagmus of central origin, the other simply an ocular one. In the true nystagmus with the use of the Barany test you will have demonstrated two motions of the eye, one being rather short, the other a longer one. In the ocular type you simply have a to and fro movement, the movements being as far to one side from the midline as from the other. This type you see frequently in blind eyes. Bearing in mind these two types of nystagmus will often aid and help you in your diagnosis of central lesions.

Dr. J. J. Shea, Memphis: I merely wish to discuss Cases Nos. 5 and 7, mentioned in Dr. Ellett's paper. Case 5 was of interest because it taught the lesson that a persistent headache must have a cause. She had been under spasmodic treatment with Dr. Ellett for a score of years, and last summer appeared at the office complaining of a pain behind a practically blind eye, that also suffered with an external squint. A most careful examination of the nose and sinuses, including an x-ray, failed to disclose any pathology. Fearing a vacuum sinusitis, I removed the anterior tip of her middle turbinate and explored the ethmoidal region and found that the frontal and sphenoidal sinuses were ventilated and drained. We watched carefully for some other clue, and in time our efforts were rewarded by the onset of aphasia. Then the case revealed its true intracranial significance. She went on from bad to worse, and as Dr. Ellett has said, required a trephine operation for relief. The lesson of these cases being that a persistent headache must have a cause.

Case No. 7 is of importance in showing the help that a Barany test will give you in an obscure and complicated condition. Briefly, we were unable to elicit any reaction from both branches of the eighth cranial nerve auditory)—that is, she was totally deaf and the vestibular branch also was dead as far as we could determine. Death of both labyrinth is rare. Therefore, inasmuch as she showed one sign of intracranial pressure—choked disc—we sought for an explanation of the failure to transmit an impulse along the eighth nerve. A lesion which would affect both sides could best do this at their crossing, so an opinion was rendered that there was pressure being exerted in the mid-brain. The trephine revealed the ventricles distended with fluid, evidently from pressure exerted in the mid-brain on the aqueduct of Sylvius, thus distending the ventricles.

ETIOLOGY OF DIABETES MELLITUS.*

By W. K. Vance, M. D.,
Bristol.

One of our American humorists once wrote, "man was created just a little lower than the angels and has been getting a little lower ever since." The barbarism and brutality displayed during the terrible world war from which we have recently emerged and the extortion practised by profiteers during the intervening "piping time of peace" offer sufficient grounds to justify the indictment.

On the other hand, a much mooted question in recent years and one which has disturbed the equanimity of many an one is whether or not the genus homo has, by a process of evolution, ascended the scale of animal life from the monkey. Some of us revolt at the idea of having sprung from such an ignominious source, while others derive comfort from the reflection that it is far better to have evolved (if I may coin a word) upward than downward—better to be a man than a monkey, or may be a tadpole.

Whether we agree with the ideas enunciated by Mr. Darwin in his "Origin of the Species" or not, a careful perusal of his writings is quite interesting and perhaps no book

in modern times has been more "cussed" and discussed by the scientific and theological world.

It has been the good fortune of the writer to have inherited from a long list of progenitors, who were members of our honorable profession, text-books on the practice of medicine which were orthodox in their day and time, and having quite often from curiosity as well as a love for "the quaint and olden pages of forgotten lore" delved into them, I have decided to carry you back to the monkey era in medicine and refresh your memories with the multifarious theories which have been entertained in different ages in explanation of that most interesting morbid condition known as diabetes mellitus.

Such a retrospection shows internal medicine from its lowly origin has advanced from generation to generation onward and upward. The almost insurmountable obstacles which have been overcome, increases our reverence for those who have brought it to its present exalted position and inspires greater hope for the future unraveling of the mysteries which surround abstruse pathological conditions.

As would naturally be expected of a disease, the most prominent symptom of which is conspicuous to all, diabetes early attracted the attention of medical men and we find frequent reference to it by the early Greek and Roman physicians. They, however, had no well-defined ideas as to the essential nature of the disease, namely, its saccharine character, but considered it simply a rapid discharge by the kidneys of the liquids taken into the stomach, without having undergone any change by the digestive and assimilative organs.

Aegeneta, an authority in the days of the Caesars says, "Diabetes est subitus potulentorum exitus, talibus urinam redditus qualia pota fuerunt." This is, "Diabetes is a sudden discharge of liquid drinks, which are voided by the urine such as they were taken in by the mouth." Celsus, too, says, "Diabetes consists of a greater discharge of urine than there are fluids taken in by the mouth," and Aretaeus, who gave a very accurate description of the phenomena of the disease, for his time, defines it in the same way.

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

Galen, one of the honored fathers of medicine, regarded it as a kidney disease. He says: "A high degree of appetency or irritation exists in the substance of the kidneys, in consequence of which they attract the matter of urine with great vehemence from the vena cava; that an equal degree of atony and relaxation exists in their orifices or pores, so that the same matter flows off unchanged as soon as it reaches them."

This general view of the disease was adopted by the profession, and descended with little variation from one generation to another, until the reign of Charles the Second of England, when Dr. Thomas Willis first called the attention of practitioners to the curious and important fact that the urine of diabetic patients contained "a saccharine principle." (I might mention in passing that he is the gentleman who erected a monument for himself in anatomical nomenclature by manufacturing out of the internal carotid and vertebral arteries, for the delectation of medical students, the well known ring, known as the circle of Willis.)

This discovery caused Willis to abandon the accepted theory of the profession as to the renal origin of the malady. In his writings he thus expressed his opinion, "Diabetes is rather an immediate affection of the blood than of the kidneys, and thence derives its origin, for the mass of the blood becomes, so to speak, melted down and is too copiously dissolved into a state of serosity, which is sufficiently manifest from the prodigious increase in the amount of urine which cannot arise from any other cause than from this solution and waste of blood."

This hypothesis of Willis was immediately adopted by his distinguished contemporary, Sydenham. Thus advanced and advocated by two of the brightest luminaries that lighted the medical world at that time, it cannot be a matter of surprise that this opinion should have been extensively adopted. They even went a step further and enunciated the belief that this "dyseracy or intemperament of the blood," to use their own words, "was produced by a morbid action of the assimilating powers."

History proves that these two great men were ahead of their time. Had organic chemistry kept abreast of the other branches of medicine we would never have had at this juncture an instance of "truth being crushed to earth." The fact is that this great step forward in the elucidation of the causation of diabetes had to be abandoned for a time because no chemist could detect "the saccharine principle" in the blood. They could find it in the chyle, lymph and urine, but no trace of it could be detected by the tests then in use in the serum of the blood.

Accordingly we find it recorded that the Aesculapian Society of Edinburg, Scotland, "Unanimously awarded its prize for the year 1778 to Dr. Charles Darwin for his essay on: "The Retrograde Motion of the Lacteals." His theory was this: "Diabetes is produced by the backward flow of chyle and lymph, that, instead of flowing from the periphery to empty into the subclavians, the current is reversed, that the urinary branches of the absorbents, which are connected with the lacteals with many anastomoses have their motions reversed and a large quantity of pale unanimalized urine is thereby discharged."

To Dr. Dobson, of Liverpool, in the year 1779, is due the credit of the discovery that the "saccharine principle" of diabetic urine is due to the presence of sugar. Fifty-six years thereafter, in the year 1835, Dr. Ambrosiani, of Milan, Italy, isolated crystals of sugar from the serum of diabetic blood, and from that discovery we may date the first practical scientific advance in the elucidation of this complex problem.

But a halo of light that obscures all previous discoveries as to the etiology of this disease dawned upon the medical world about the middle of the nineteenth century, when the brilliant French physiologist, Claude Bernard, to whom science is so deeply indebted, made known for the first time the glycogenic function of the liver. This discovery of Bernard's revolutionized the opinion of profession temporarily as to the causation of diabetes. What hitherto had been an unsolved problem now appeared as bright as the mid-day sun, and the poor old liver, which has

been more maligned than any other organ of the human body, at once received the maledictions of the medical fraternity for being responsible for another human ill.

Pardon me for dilating on a subject well known to you all. As before stated, the presence of sugar in the blood, saliva and alimentary canal of animals fed on saccharine and amylaceous food, had been frequently noted. The experiments of Bernard, however, proved that the animal organism had the power of forming sugar irrespective of the nature of the food, and that sugar exists in certain parts of the circulation—from the hepatic veins to the pulmonary capillaries—all the time in both the herbivorae and the carnivorae. In addition to this he taught us that the lungs and liver stand in an inverse relation to one another so far as sugar is concerned. In a fasting animal the blood going to the liver contains no sugar, while that leaving it does. On the contrary, the blood going to the lungs contains sugar, while that leaving does not. The sugar in this physiological state remained hidden between the liver and the lungs and for this reason its elaboration by the liver was not sooner discovered.

Furthermore, by the examination of the substance of the livers of three healthy criminals, and that of a diabetic patient who died suddenly of pulmonary apoplexy, he found the relative quantity of sugar to be in the proportion of 22 grammes in the former and 57 grammes in the latter. How natural then it was to conclude that the causation of diabetes had been definitely settled! That it was nothing more nor less than the production of a larger quantity of sugar by the liver than could be utilized by the organism, and hence its appearance in the urine.

Thus far then Bernard and many of his contemporaries believed that this much mooted question had been definitely settled. But Bernard's inquisitive mind was not yet satisfied. He longed to know the ultimate, underlying factor concerned in the formation of this over amount of sugar. By experiments on the lower animals he had found that he could produce glycosuria at will by puncturing the middle line of the floor of the fourth ventricle exactly between the origin of the

pneumogastric and the auditory nerves. That if the puncture is above the center near the origin of the auditory, there will simply be an increase in the amount of urine. If near the origin of the pneumogastric there is no polyuria, but sugar in abundance results. Hence he concluded that "diabetes is the result of some exciting cause, where reflex action conveys the stimulus to the medulla oblongata, whence it is propagated by the spinal cord and filaments of the great sympathetic nerve to the liver and thus excites its glycogenic function.'

This theory of Bernard's is so beautiful and ingenious that it deserves to be true, but it is not. Were it true we could naturally expect always some evidence of lesion in this "diabetic area" discoverable macroscopically or microscopically in autopsies on diabetics. While such evidence is sometimes found, it is generally in cases of transient glycosuria, but seldom, if ever, in persons dying of true diabetes.

Later investigations have shown that if before making the puncture the liver is freed from glycogen by starving or chasing the animal, glycosuria is not produced. Absence of glycosuria is also the rule if the punctured animal has previously been carefully poisoned with strychnia or several of the narcotic poisons, also by phloridzin, caffeine, or theobromin. There is but little doubt that all the traumatically and toxically produced cases of glycosuria are of hepatic origin—that is, are due to the expulsion of glycogen from the liver under the vaso-motor nervous influence. Glycosuria produced in this way only lasts as long as the glycogen accumulated, sometimes in large, sometimes in small quantities, continues to be given off, or until the excess of sugar thrown into the blood has been eliminated by the kidneys or used up in the tissues.

As will be seen by the foregoing, diabetes has a more restricted meaning than formerly, in that according to modern ideas it is "a chronic disease in which glucose is excreted in the urine when the diet does not contain more than a normal amount of carbohydrates, thus associating it with its most important clinical symptom, "and differentiat-

ing it from other conditions attended with glycosuria to which the name diabetes was formerly applied. It is a well known fact that a comparatively healthy person is frequently the subject of chronic glycosuria when living on a diet abnormally rich in carbohydrates, but these constitute the so-called cases of alimentary glycosuria, and must not be confounded with true diabetic glycosuria in which sugar is constantly present in the urine when the diet does not contain an excess of carbohydrates.

We now come to the consideration of the most interesting and practical part of this question, and it is along this line of research that this terra incognita has been forced to yield up to medical science much of the practical knowledge thus far acquired, and it is more than probable that it will be along this line that future investigators will be enabled to explain satisfactorily all of the mooted points relative to the etiology and pathology of this interesting disease.

In the year 1833 Richard Bright reported a case "of jaundice in which fatty stools occurred, and the urine had a sweet taste." Sad for the patient, but fortunate for science, an autopsy was later held on this patient and a scirrhous mass was found occupying the head of the pancreas. Many careful observers have since noted the fact that diabetic patients are frequently found post-mortem with cancer, sclerosis or cystic disease of the pancreas.

Prof. Von Mering, of Strausberg, was one of the earliest experimenters on the lower animals to determine the position occupied by the pancreas in the causation of diabetes. The result of his observations established the fact that the removal of the pancreas was followed by permanent diabetes in the animal, resembling the severest form of the disease in man. The hunger and thirst was greatly increased, and though well fed, the animal emaciated rapidly. As proof that the disease was not due to traumatism, but to the loss of the pancreas, he ascertained that if a small section of the gland was allowed to remain, glycosuria does not result. He also established the more remarkable fact that after the removal of the entire gland and gly-

cosuria is occasioned thereby, if a portion of it is grafted under the skin, sugar disappeared from the urine. Experimentation along this line has developed another significant and important fact, and that is when the pancreatic juice is cut off from the duodenum by ligating the pancreatic duct, glycosuria is also absent. This forces the conclusion that besides the pancreatic juice, which may be regarded as the external secretion of the pancreas, it also produces an external secretion which either aids in destroying the sugar produced by the liver or else inhibits its glycogenic function, thus enabling glycogenesis to keep pace with glycolysis. In confirmation of the correctness of this conclusion I simply mention the well established fact that if grape sugar is given an animal that has lost the pancreas, the whole of the sugar can be recovered from the urine.

This, like Bernard's, is another beautiful and plausible theory in explanation of the etiology of diabetic glycosuria, but scientists are ever iconoclasts, and I almost regret to state that more recent investigations have to some extent controverted it.

Examination of the post mortem tissues of diabetics shows not only the already mentioned hyperglycaemia, but also the extraordinary poverty of the organs in glycogen. Late experimental results of pancreas extirpation, and the puncture of the liver of living diabetics has confirmed this. There is no question but that the incapacity of the organs to manufacture and store glycogen explains all the peculiarities of diabetes. It accounts for the hyperglycaemia which is evidently the cause of the glycosuria. The carbohydrates absorbed from the intestine can find no resting place. In consequence of not being utilized by the tissues as fast as they reach the blood, hyperglycaemia and glycosuria results, which is most intense when the absorption of carbohydrates is at its greatest height.

We now come to the most important question confronting the profession today, so far as the elucidation of this question is concerned, and that is: "What is the cause of this defective formation of glycogen?" He who can certainly solve this riddle will settle the etiology of diabetic glycosuria and make

humanity forever his debtor. At no time in the world's history have there been so many competent, consecrated and indefatigable workers in this field of research, and in the near future, I am quite sure, this arcana will be forced to yield up to inquisitive man all of its secrets.

Perhaps no more astute and laborious investigator has tried to unravel this enigma than Prof. Lepine. According to him the amount of glycogen is decreased for the reason that the "glycogenic ferment" in the blood is diminished in spontaneous diabetes in man, just as it is after the extirpation of the pancreas. Physiologists inform us that the glycogenic ferment is analogous to the oxidizing ferments universally present in the organism, but that their action is so feeble that only a small part of the sugar which a normal man transforms each day could be destroyed by them. Moreover, careful investigation shows that there is but little if any difference in the amount of ferment present in normal and diabetic blood. These well established facts have robbed Lepine's theory of the foundation on which it is based, and he has acknowledged his error, and is now of the opinion held by physiologists generally that it is not in the blood, but in the tissues that the decomposition of sugar occurs.

Conheim, who has given much time and study to this subject and who has been quoted by most of our text books in recent years, in an effort to explain the deficient formation of glycogen adduced the theory that neither the pancreatic juice alone, nor the muscle juice alone produces any considerable glycolytic effect, but that when both juices act conjointly upon sugar a most remarkable destructive effect is produced. Like Von Mering and Minkowski he believes that the pancreas gives off something which when carried to the tissues by the blood, enables them to destroy the sugar. Conheim gives this hypothetical substance the name "activator of the pancreas." His theory, like that of Lepine, however, has failed to stand the scrutiny of recent investigation, as Embden and Claus, of Von Noorden's laboratory, have proven that if the

muscle juice can be kept aseptic, its glycolytic power is not altered by the addition of pancreatic juice, a matter to which Conheim had not given sufficient attention.

Prof. Carl Von Noorden while accepting the views of Conheim and Lepine as to the part played by the pancreas in the etiology of diabetic glycosuria, explains its *modus operandi* somewhat differently, and I hope that plagiarizing from so renowned an authority will not be considered a serious offence.

According to Von Noorden, instead of the pancreas elaborating a ferment the function of which is to contribute to the formation of glycogen, he believes it supplies the blood an anti-ferment, the office of which is to prevent the too rapid destruction of glycogen, and for this reason it is impossible to work quickly enough to ascertain correctly the amount of glycogen in the tissues.

If then the pancreas furnishes an anti-ferment which serves as a restraint to the diastatic ferment, a deficiency of such an anti-ferment would produce exactly the same result as a deficiency of a ferment favoring the fixation of glycogen. Poverty of glycogen in the organs, and over abundance of sugar in the blood would be inevitable consequences, and the cardinal symptoms of diabetes would necessarily ensue. I wish, however, to call your attention particularly to the fact that this hypothesis tends in quite a different direction to those of Lepine and Conheim. These authorities concern themselves with anomalies of the glycolytic process, while Van Noorden has in view anomalies of the diastatic process. Please bear in mind this important fact, that the two views have this in common that they assume that there is a substance elaborated by the pancreas which in some way, not yet understood, disturbs the normal metabolism of carbohydrates in the body of a diabetic.

So deeply rooted has the doctrine of pancreas diabetes become that there are few who no longer doubt it. But the anatomical alterations in the pancreas, even in very chronic and severe cases, are often slight and difficult to discern, and for this reason there are still a few "doubting Thomases" in the profession, who are not inclined to accept the pancreatic theory as conclusively proven.

To such objectors Von Noorden says: "Whatever the solution turns out finally to be, this much is certain at the present time, namely: that the specific diabetic disturbances of the pancreas are not necessarily connected with visible anatomical alterations in the tissues of the pancreas. For those cases are very frequent in which the most conscientious anatomical examination has failed to bring to light any pathological change, or at most has revealed a very slight increase of connective tissue. It is evident that very severe disturbances of chemical functions may occur in this organ without impressing their image on anatomical structure. We are all still under the influence of that glorious epoch in which pathological anatomy was the only mistress from whom scientific medicine could learn with profit, that it is often difficult for us to realize that important disturbances of function may occur when microscopic examination reveals no distinctively pathological changes. In formulating any theory about diabetes, however, it seems to be necessary to let go such ideas and search for the root of the matter in those disturbances of the intracellular chemical mechanism which though often accompanied by anatomical changes of the organs or perhaps caused by them, may yet develop without any structural alterations. Of the nature of these chemical disturbances one cannot even hazard an hypothesis.

In recent years it has been taught that the pancreas really consists of two glands which are quite independent in their development and function. One part, it is held, furnishes the digestive ferment, while the other part, consisting of the solid ductless masses of cells—the so-called islet of Langerhans—is supposed to furnish the substance which is essential for the metabolism of the carbohydrates and to pass it into the blood. Pathological anatomists assert that these two different parts of the pancreas may become diseased and degenerate independently, the one or the other, and that anatomical alterations which occur in diabetes concern especially, and sometimes exclusively, the islets of Langerhans.

"A very important and interesting question is whether the hyperglycaemia is a result of the overproduction of sugar, or whether it results from under consumption of hydrocarbons on the part of the organs. The question is an old and complicated one; old in that it has been much discussed ever since the essential character of diabetic urine was first pointed out by Dobson; and complicated because it takes us into the labyrinths of physiological chemistry."

At this time it is generally conceded that in diabetes we have both an overproduction and under consumption of sugar. The tissue cells of a diabetic individual are bathed in a superfluity of sugar because of this overproduction, and for the further reason that they are unable to utilize it. It is another instance of, "water, water everywhere, and not a drop to drink."

Prof. Welchselbaum gives strong corroborative testimony as to the correctness of Von Noorden's views in a paper based upon 256 autopsies. One hundred and eighty-three were patients who died of diabetes and seventy-three had died of chronic tuberculosis. He found the islands of Langerhans strikingly diseased in every case of diabetes, while the tubercular subjects showed no evidence of a similar condition. He is of the opinion that it is not any special changes in the islands but the extent of the involvement which determines the development of diabetic glycosuria. He furthermore states that in some non-diabetics the parenchyma was so much atrophied that the weight of the pancreas ranged from 35 down to 20 grammes and yet the islands were not diseased, and that though the urine has been frequently examined during life for sugar none had been found. He states that the type of the diabetes corresponds with the different forms of the changes in the islands, the graver forms accompanying and complicating arterio-sclerotic changes in the islands. The practical deduction is that every thing favoring arterio-sclerotic changes should be carefully avoided when diabetes is feared or is present.

Preponderance of evidence points unerringly to disease located in the islands of Langerhans as the chief, if not sole, cause of dia-

betic glycosuria and interesting as it is, time admonishes me not to lengthen this paper by entering upon the consideration of recent theories as to the part played by disease of the ductless glands in its causation.

In conclusion it might not be inappropriate to assign a reason for presenting a paper of this character to you at this time. It has been my experience on numerous occasions to encounter intelligent persons both in the profession and out of it who bewail, what they consider a fact, that the Science of Medicine is non-progressive. It was to refute such an idea that suggested the preparation of this paper. Sherlock Holmes in all his glory has never done a more remarkable piece of detective work than have those members of our profession who are due the credit of having revealed to us all that is known so far concerning the etiology and pathology of diabetes mellitus.

DISCUSSION.

Dr. William Litterer, Nashville: I am very sorry that the Doctor did not have a chance to complete the reading of his paper. As far as he read, it was very interesting and up to date. The question of etiology of diabetes has been much written upon. The disease is generally conceded to be pancreatic in its origin. A disease or altered condition of the areas of Langerhans in the pancreas are responsible for this condition. These islets of Langerhans produce an internal secretion which presides over the proper utilization of sugar in the body. The old idea that the kidneys were involved when sugar was present in the urine is not now held tenable. The kidneys are really performing their function which when a certain per cent of sugar in the blood is exceeded then the kidneys will eliminate the excess. The most accurate way to determine true diabetes is to make several sugar determinations of the blood and urine.

I wish to call special attention to the inaccuracies or fallacies of the ordinary copper tests that are employed by the majority of practitioners and insurance examiners. There are many fallacies of the Trommers, Fehlings and Haines copper tests. Many a person has been turned down by insurance companies because their urine caused a reduction of some of the copper tests. I have in

mind several cases quite recently where the individuals were pronounced bad risks for life insurance because a distinct reduction was present in the Fehlings and Haines test. Subsequent examination by other tests revealed the fact that an excess of uric acid in one case and the presence of glycuronic in the two other cases were the cause of the positive sugar test. The copper tests are excellent provided you get a negative test; but when a positive test is obtained, then it is imperative to employ a confirmatory test, such as the phenylhydrazin test or the fermentation test, the latter of which can be performed by any practitioner.

Dr. E. R. Zemp, Knoxville: I could not hear the reading of Dr. Vance's paper very well, and I am sorry he did not have time to read all of it. While the etiology of diabetes has so far escaped discovery, I believe if Dr. Vance had had about thirty minutes more he would have discovered it.

No doubt in all cases of true diabetes there is some lesion of the pancreas and some very interesting experiments have been carried out to prove this. A number of bitches were operated upon and the pancreas removed. In each case diabetes promptly developed except in one. This threw a damper on the experiment until it was found out that this particular bitch was full of little bitches, and each of these little bitches had a pancreas, which furnished enough secretion to prevent the appearance of diabetes.

While we are not able to say positively what is the direct cause of diabetes, Allen has given us a method by which we can say positively whether a patient has diabetes or not. In this way we can exclude all forms of non-diabetic glycosurias. This method of differentiation is known as Allen's paradoxical law, and is based on the fact that "whereas in normal individuals the more sugar is given the more is utilized, the reverse is true in diabetes." Allen states that the limit of tolerance in non-diabetic animals are all apparent, not real, and that death alone limits the power of utilization of sugar. This law applies to all species of animals, to all methods of administering sugar, and to all sugars and carbohydrates. This law proves that diabetes is not simply an overproduction of sugar; that it is not due to excess renal permeability, or to overaction of certain glands, or to disturbances of the nervous system.

As to treatment, there is no specific, and until we have made more progress in the study of this disease and have determined its cause you will attain the greatest success by following the Allen treatment, or some modification thereof.

EMPYEMA.*

By Lucius E. Burch, M. D., F. A. C. S.,
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Very little attention has been given this subject by the profession until within the last three years, due to the fact that it was not a very common complication. The average surgeon saw very few cases during a year's work. If his case recovered after a rib resection or incision and drainage, it was considered a normal case. If the outcome was fatal the general practitioner was blamed for not discovering the pus earlier and resorting to surgery at the proper time. A study of the statistics of the large hospitals of the country for five or ten years preceding 1918 shows that empyema is an exceedingly dangerous condition and had a mortality of from twenty-five to forty per cent. The Mt. Sinai Hospital for a period of ten years preceding 1914 had 299 cases of empyema, with a mortality of twenty-eight per cent. In this same hospital an examination of 574 cases of pleural exudate showed that 133 were caused by the streptococcus. It has been and is now a very difficult matter for the profession, as a whole, to realize that empyema is a very serious condition, and that all cases are not the result of a pneumococcus infection.

There is a certain time to operate in one class of cases, and in another class there is a time when operation is contraindicated. A great impetus has been given to the study of this subject by the large number of cases that appeared in the army camps in the spring of 1918 and following the "flu" during the fall of the same year. During the winter and early spring of 1918, I was Chief of the Surgical Service at Camp McClellan, and I will never forget the shock I received when one of the junior officers of the surgical service,

who had been assigned to gather statistics for the Surgeon-General's office, informed me that the empyema mortality was thirty per cent. The majority of cases that appeared followed measles, and for the most part were due to the streptococcus haemolyticus. It was the custom to operate as soon as fluid was discovered, regardless of its consistency. The same mortality was experienced in the other camps and cantonments until repeated aspiration became the routine procedure, followed by operation when the fluid became purulent in character, which treatment produced a marked diminution in the death rate. Too much credit cannot be given to the Empyema Commission appointed by the Surgeon-General, for as a result of their report the treatment of empyema was placed on a rational basis.

Empyema usually follows acute lobar pneumonia, measles, bronchitis or the "flu," complicated by broncho or lobar pneumonia. The fluid may contain one or several organisms. The most common are the pneumococcus and the streptococcus haemolyticus. According to the statistics of Eggers, the more serious cases are those following a measles pneumonia and the mortality is higher where the streptococcus is the invading organism.

In order that the disease may be intelligently treated it is essential to understand its pathology. Moschovitz divides streptococcus empyema in three stages—the formative, the acute and the chronic stages. In the first or formative stage there occurs a rapid formation of fluid in the pleural cavity, which frequently occurs in from twenty-four to forty-eight hours after the onset of the illness. This rapid formation of fluid in the pleura, containing myriads of virulent streptococci, is caused from a pin-point rupture of a small sub-pleural pulmonary abscess. In other words, the virulent infection of the pleura takes place in the same way as the rapid and fatal variety of peritonitis—namely, by rupture of a viscus. These small perforations in the pleura may be seen on the operating table and occasionally may be demonstrated by the x-ray, or are discovered post mortem and are further confirmed by the presence in some cases of a pleuro-pulmonary fistula. In this

*Read at annual meeting of Tennessee State Medical Association, at Chattanooga, April, 1920.

first stage the fluid is free within the pleural cavity, and there are few limiting adhesions. In the course of five to ten days the fluid changes from seropurulent to a thick creamy pus. At the same time that the character of the fluid changes adhesions are formed between the parietal and visceral layers of the pleura, converting the free sero-purulent pleurisy into a closed purulent pleurisy or empyema, shut in on all sides by firm adhesions.

As I am discussing this subject from the surgical standpoint, I will not attempt to describe the symptoms and physical signs. It is essential that a close co-operation exist between the medical man, the surgeon, the roentgenologist and the laboratory. The diagnosis is quite easy in the average case, following an acute lobar pneumonia, but in the streptococcus empyema team work is necessary, and in addition the exploring needle should be used over all suspected areas.

In the streptococcus form of empyema in the formative stage the patient is quite ill, the pulse is weak and fast, the temperature has a steeple-like character, jumping up and down, the respiration is fast and air hunger is a conspicuous feature. In the second or acute stage the patient's condition is markedly improved, with a diminution of all symptoms.

The treatment differs, depending on the variety of the infection and the stage of the disease. An accumulation of pus following an acute lobar pneumonia should be operated on at the earliest possible moment, for the reasons that adhesions form early and the danger of lung collapse is eliminated. In the streptococcus empyema operation is contra-indicated during the early stages. At this time the patient is acutely ill, there is in the pleural cavity an accumulation of seropurulent or serofibrinous fluid, the lung is not held in check by adhesions and if an opening is made in the chest collapse of the lung takes place and the chances of the patient are materially lessened. Aspiration is the treatment, par excellence, during the formative stage of the disease. This should be repeated daily, if necessary. Within five to fifteen days the patient shows a marked improvement, and

the aspirated fluid changes in consistency from serofibrinous fluid to a thick creamy pus. The improvement in the patient's condition, associated with a change in the character of fluid, corresponds with the advent of the second stage of the disease and with the formation of firm adhesions and is the ideal time for operation. In a few cases multiple aspirations will cure, and the disease will not reach the second stage. This fortunate result is the exception rather than the rule.

The average mortality in the various camps in the winter of 1918 was 30 per cent. The highest in any one camp was 81 per cent in a series of eighty-five cases. The mortality report of the Empyema Commission, to which I have already referred in this paper, was one death series of twenty-four operative cases, or 4.3 per cent. This low mortality was attributable to the fact that multiple aspirations were carried out during the formative stage of the disease and operative treatment during the second or acute stage. A marked lowering of the mortality rate was noted in every camp in which this method of treatment was adopted.

If the intercostal spaces are wide, incision and drainage are sufficient. If the spaces are quite narrow, rib resection is necessary. Either one of these procedures should be carried out with a local anesthetic. Following the operation the patient should be frequently and liberally fed. Liquid diet is not sufficient for these cases. In addition to egg and milk they should be permitted to have meats, vegetables, bread, toast, fruits, pudding and custard. I cannot emphasize too strongly the necessity of almost a forced feeding of a very liberal diet. Fresh air is essential and if the patients can be kept out of doors continually their chances for recovery are increased.

The ideal after treatment of the wound is the Dakin-Carrel method. It decreases the days of invalidism and in the majority of cases it causes prompt healing. It is a method, however, that cannot be properly carried out in every hospital, for the reason that a trained personal is essential. Dichloramine-T injected into the cavity once every day is a much simpler treatment, but not so efficacious. The majority of cases will close without the use of antiseptics, but their use, especially the Da-

kin-Carrel, will not only hasten recovery, but will effect a cure in almost any case. Blowing exercises should be instituted following operation, and as soon as the patient's condition permits daily calisthenics should be a routine procedure. If the above line of treatment is carried out, there will be a very few cases that will terminate in the third or chronic stage of the disease, namely, discharging sinus and a large cavity. Beck claims that he cures 80 per cent of these chronic cases with bismuth paste.

The Estlander operation has been in the past the operation of choice for those cases that will not heal. In my opinion it should never be used, as it leaves a deformed chest and a collapsed lung. Fortunately, the chronic cases are rare, but when encountered I advise the Lilenthal operation, which does not deform the chest and expands the lung.

In conclusion, I desire to repeat and emphasize the following:

(1) All cases of empyema that contain creamy pus should be operated on without delay and regardless of the organism in the fluid.

(2) Never operate when the fluid is serobriminous, regardless of the organism.

(3) Forced feeding with liberal diet and fresh air are essential in the treatment.

(4) A local anesthetic with incision or rib resection and drainage is the routine operation. Antiseptics hasten recovery. The ideal one is the Dakin-Carrel.

(5) In chronic cases the Estlander operation is contra-indicated. Use the Lilenthal operation or some modification that produces lung expansion and leaves no deformity.

DISCUSSION.

Dr. R. L. Sanders, Memphis: I had hoped Dr. Burch would not say so much, then I would have a chance to say something, but he has said it all. Like Dr. Burch, I was surprised when I was aware of the high mortality from empyema. Learning this, I decided it was time for the profession to give more attention to this matter. If we had all had the opportunity of consulting the works Dr. Burch has read while compiling the material for this paper, I am satisfied we would know a great deal more than we do about empyema. While I was in the service I received the greatest surprise at the high mortality. About that time the retiring chief of service, who preceded me,

decided to aspirate many of these cases and wait until the pneumonia had entirely subsided and the formative period was over before operating. This practice reduced our mortality greatly. This applied especially to the streptococcus type of empyema following pneumonia. When the infection is of the pneumococcus type and secondary to ordinary pneumonia, one can handle it quite safely by operating most any time. Many cases came back from overseas with lives saved by either thoracotomy or simple aspiration, and a chronic discharging sinus with one or more pockets remaining. This became quite a problem, and it was with just this group of cases that we obtained the best results with radical rib resection and the Carrel-Dakin method. We often introduced three, four or five tubes and flushed the cavity till it was sterile. This gave most phenomenal results in most cases and many of them healed entirely in from twenty-one to twenty-six days. I simply rise to endorse what Dr. Burch has said, and also to emphasize a reasonable delay in the early streptococcus cases and radical operation with the use of the Carrel-Dakin method in the chronic cases.

Dr. L. E. Burch (closing): I wish to thank the gentlemen for their kind discussion. I should like to emphasize again that there are two types of empyema—first, the type that follows pneumonia, and is due to the pneumococcus. The second follows measles, bronchial pneumonia and la grippe, and is due to the streptococcus hemolyticus. In the first variety the fluid from the beginning is pus, and whenever pus is present in the pleural cavity, an operation is indicated. In the second variety the fluid in the early stage is serous, containing millions of streptococci. As long as the fluid is of a serous character, aspiration is indicated. When it changes to pus, then an incision and drainage are demanded. I am glad that Dr. Sanders mentioned the Dakin-Carrel treatment. It is very effective, if properly carried out, but it is a difficult technique, unless your assistants have had special training in this line of work.

DIAGNOSIS OF KIDNEY LESIONS.*

By C. F. McCuskey, M. D.,
Dyersburg.

It is very apparent that the subject is too large to be covered amply in a short time and that only certain points can be touched on in the time at my disposal. The lesions which come within the realm of internal medicine I shall not mention.

*Read at meeting of West Tennessee Medical and Surgical Association at Jackson, May, 1920.

In the diagnosis of kidney lesions pathogenesis must necessarily play a very important part as we have left much to be desired if we fail to recognize the source and mode of development. The term "idiopathic" should be discarded as much as possible and non-recognition of cause attributed to inadequacy of investigation and examination rather than the absence of cause.

In making a direct diagnosis one should not rely upon symptomatology alone but should let the final diagnosis be made by exploration conjointly with the cystoscope, ureteral catheterization, radiography and all other means which should be at one's disposal.

Pyelitis is one of the most common conditions which we find in kidney lesions. Infection of the kidney may rarely be an ascending one but by far the greater majority of cases will be found to be due to some other source. Quite frequently pyelitis with a consequent ureteritis and cystitis may be traced to an abscess at the root of a tooth, diseased tonsils or nasal sinuses and local points of suppuration at other parts of the body. The recognition of these conditions as a primary cause will change the therapeutic indications.

Quite recently I have had a case of pyelitis due to an infected tooth which cleared up on removal of the focal infection and under the administration of hexamethylenamine therapy and pelvic lavages locally through the ureteral catheter.

The more common conditions which may give rise to an ascending infection are, stricture or some obstruction and chronic cystitis. In women the cystitis of pregnancy plays an important role. The colon bacillus is usually the organism found in infections of the upper urinary tract.

Ureteral catheterization is very essential in determining which kidney is the seat of the infection. By catheterizing each ureter one may contain an uncontaminated specimen for microscopic examination and for culture. After the microscopic examination has been made with the patient still on the table, the diseased side should be x-rayed and an idea obtained from the pyelogram of the amount of damage done to the renal tissue. The pyelographic outline of an inflammatory

condition may be differentiated from a simple dilation of the pelvis due to a mechanical obstruction by the irregularity of contour and by the changes being confined largely to the calyces. Of the solutions used for pyelograms, thorium nitrate or sodium bromide give the best shadows with less damage to renal tissue.

The diagnosis of pyelitis, then, may be made by ureteral catheterization, microscopic examination of specimen thus obtained and culture to identify the infective organism. To gain more light on the condition, pyclography should be used.

The diagnosis of renal calculus may not be made on symptoms alone. Here again the sure way is to make use of all the means at our disposal and in this condition the x-ray plays a very important part in determining the presence and position of the stone. The only cases in which the x-ray expertly employed is apt to fail to reveal a stone is in the case of calculi composed largely of uric acid, which stones are of very light specific gravity and cast no shadow. The intestinal tract should be thoroughly cleansed out the day before x-raying for stone, to prevent impacted feces and intestinal gas from producing confusing shadows on the plate.

The diagnosis of renal calculus may be confused with tuberculosis of the kidney, malignant growths, pyelitis and movable kidney, but the x-ray will eliminate most of these conditions. Cabot notes that the records of 153 cases operated upon for these conditions in the Massachusetts General Hospital showed that in 26, abdominal operations had previously been performed with no relief of symptoms. Pain or urinary abnormalities or a positive x-ray were present in every case at his examination.

Renal tuberculosis occurs most commonly between the ages of twenty and forty-five though it is by no means confined to these limits; the extremes are three months, and seventy years. Males are more frequently affected than are females. Infection carried by the blood to the kidney is the usual beginning of urogenital tuberculosis, which later involves the lower tract. The infection may however be an ascending one and when this

is the case it is usually bilateral. Hematogenous infections are as a rule unilateral until the opposite kidney becomes involved through an ascending infection from the bladder.

The positive diagnosis of renal tuberculosis can be made only by finding the tubercle bacillus, either by microscopie examination or by guinea pig inoculation. Many conditions aid in the diagnosis, however. In this condition the differential functional kidney test is of great value, as the tuberculous kidney will have a marked decrease in function. The appearance of the ureteral orifice is also of value in making a diagnosis, as a ureterorenal tuberculosis will cause the orifice to appear a waxy dirty white color, and it is usually at the base of an ulcer resembling somewhat an infected scratch.

The tuberculin test may merely indicate that there is a tuberculous lesion in the body, or by the focal reaction, the kidney becoming more tender and the existent symptoms more marked, the tuberculosis condition of this organ may be clearly indicated. When the tuberculous kidney becomes infected with pus micro-organisms, and this takes place in practically all cases, the symptoms are simply those of a pyelitis, or a pyelonephritis and the diagnosis as to the tuberculous nature of the affection then depends entirely upon the result of bacteriological examination.

Calculus, with or without pyonephrosis, pyogenic infections of the kidney, spinal caries with abscess formation, with or without sinuses, tuberculosis infections of other parts of the body and cystitis must all be considered and ruled out by appropriate measures.

Injuries of the kidneys may be classified as contusions and wounds, the former exhibiting no external wound leading down to this organ. Injuries to the kidneys are the most frequent visceral lesions of abdominal contusions; as a rule other viscera are not involved. The principal symptoms encountered

will be shock, pain, hematuria, diminution in the quantity of urine passed and the formation of a tumor in the subscapular, lumbar or even the iliac region may occur when the capsule is ruptured.

The diagnosis is based on the form of traumatism, thus:

(1) A kick or a blow delivered from before backward below the ribs and over the region of the kidneys, striking the side between the pelvis and the costal border against the sharp corner of a table, extreme flexion or extension of the body or a crushing force fracturing the lower ribs would be sufficient to cause rupture of a kidney.

(2) The appearance of hemorrhage exhibiting worm like clots is characteristic of renal injury. The origin of the blood may be determined by cystoscopy.

(3) Intense pain radiating in the direction of the ureter.

(4) Formation of lumbar swelling associated with extreme tenderness.

In conclusion, the value of modern blood chemical methods should receive more than passing comment, but the space allotted to this paper would not allow the subject to be discussed as fully as its importance warrants. However, our diagnostic technique has been wonderfully enriched by the perfection of laboratory methods through which the application of chemical analysis of the blood can be made to clinical problems. No diagnosis of any renal lesion can be scientifically complete without an accurate quantitative estimation of the urea, uric acid and creatinin content of the blood.

Let it be said that the employment of methods of scientific precision to the fullest extent, and leaving as little as possible to art and any so-called diagnostic sixth sense, will be productive of a greater number of early cures and a lowering of mortality in renal disease.

THE CARREL-DAKIN TREATMENT OF INFECTIONS.*

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The lesson most deeply impressed on us in the treatment of the wounded was the paramount importance of prompt surgical attention. The interval elapsing between the time of injury and proper surgical treatment determined the duration of the disability as well as the ultimate outcome.

In the first eight to twelve hours after an injury, whether it be a gunshot wound, a compound fracture or a laceration and contusion, bacteria are present and may be demonstrated in smears and cultures, but they have not begun to multiply nor have they penetrated beneath the surface and the tissues, on the other hand, have not reacted to their presence. This is the stage of contamination and it has been repeatedly demonstrated that it is possible, where one can excise all damaged tissue and remove the foreign material, to sew up as in any clean wound. This is primary suture. After this time has passed, it will be found that the bacteria have multiplied, have penetrated the tissues, and a defensive reaction on the part of the individual has taken place in the shape of a barrier of leukocytes and infection has developed.

Confusion has resulted from failure to appreciate that the Carrel-Dakin method of treatment consists of four essential parts—namely: (1) Surgical cleansing, (2) chemical sterilization, (3) bacteriologic control and (4) closing of the wound—rather than the mere use of the surgical solution of sodium hypochlorite.

(1) **Surgical cleansing.** The surgical cleansing is the most important, for no mat-

ter how carefully we make our solution or place our tubes or give our instillations, no result will be obtained as long as sequestered bone or a piece of clothing is left behind. Sir Anthony Bowlby¹ said in his address at the last Convocation of the American College of Surgeons in New York, "antiseptic agents are quite powerless to sterilize grossly infected wounds," and that mechanical removal of all severely damaged tissue and foreign matter was necessary. The amount of surgical intervention to be undertaken in the stage of contamination is limited only by the condition of the patient as regards shock. In the early stages of infection, the so-called phlegmonous stage, one must content himself with free incision and superficial cleansing, and then begin the chemical sterilization. Later on, when the severity of the process has subsided, the operative work may be completed. In the suppurative stage, sufficient opening should be made for the insertion of tubes, and when the infection has been diminished by the instillations, then the necessary measures may be taken. The shape of the wound is important—a cup shape is the most suitable and through and through openings avoided if possible.

(2) **Chemical sterilization.** This is accomplished by the introduction into every part of the wound of a sufficient quantity of Dakin's solution through properly placed Carrel tubes at stated periods of time. Unless there is strict adherence to the details² as worked out, the results will be disappointing and, vice versa, if they are followed minutely, the results will exceed expectations.

Dakin's solution is a solution containing not less than four or more than five-tenths per cent of sodium hypochlorite, neutral to powdered phenolphthalein and alkaline to the alcoholic solution. It destroys bacteria, dissolves blood clots and necrotic tissue, causes the disappearance of macroscopic pus and substitutes a gelatinous material resembling egg albumen. There is an absolute absence of odor in previously offensively smelling wounds. Toxins are neutralized by it so that a striking feature is the fall in temperature and rapid disappearance of other symptoms of toxemia. Wounds quickly lose their grayish color and

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take on a healthy red, as the necrotic tissue is removed, and fill in in an almost incredible manner.

(3) **Bacteriologic control.** On alternate days instillations are omitted for two hours before dressing the wound, and a platinum loopful of secretion is taken from what appears to be the worst portion of the wound, spread in a thin film on a clean glass slide, dried and stained. The number of bacteria in each field is counted and an average obtained by dividing the total by the number of fields. This is recorded on a suitable chart and a curve plotted. The decrease in the bacterial count goes hand in hand with the improvement in appearance of the wound, and a rise in it indicates a focus of infection not reached by the solution. When the wound approaches sterility, a culture is made to determine the character of the infecting organism, before undertaking closure of the wound. This is the first step towards introducing mathematical accuracy into the progress of a surgical case.

(4) **Closure of the wound.** When the bacterial count is five or less and the streptococcus hemolyticus proved absent, secondary suture may be performed. Wounds sterilized within eight days can be sewed up without any freshening, since in that time no scar tissue is formed. After that the edges of the wound and all the scar tissue should be excised and the wound closed in layers, taking care to prevent the formation of dead space. If this cannot be prevented by utilizing the structures at hand, a free fat, or what is preferable, a fascial lata graft, may be used to fill the cavity before uniting the tissues over it. Where operation is refused or not advisable, the edges of the sterile wound may be drawn together with adhesive plaster. The advantages of a secondary closure are the great reduction in the number of hospital days and a linear scar freely movable on the tissues underneath.

It will not be amiss to say a few words about the other chlorine antiseptics. Dichloramine-T is insoluble in water, but soluble in oil. It is used in 5 per cent solution in chlorosane (chlorinated-paraffin oil) and is an excellent antiseptic, but it is decomposed by

water, necessitating that everything used in its preparation and the wound be perfectly dry. Contrary to general belief, it is very unstable and rapidly breaks up, forming an intensely irritating acid solution. The oily solution should be odorless and neutral in reaction, otherwise it should be discarded.

Chloramine-T is soluble in water, very stable, non-irritating and used in one to two per cent solution, but as is the case with dichloramine-T, it has no solvent action, and is valuable only as an antiseptic. It was first made by Dakin and is called by the manufacturing chemists "Dakin's antiseptic," which has resulted in much confusion, the solution made with it being called improperly Dakin's solution, a fact which has brought considerable discredit on the value of the surgical hypochlorite solution. It may be used as a gargle or spray, for irrigation or as a vaginal douche. One per cent chloramine-T in neutral sodium stearate, called Daufresne's paste, is a very useful preparation in small wounds or to preserve the sterility of wounds rendered so by the use of the hypochlorite solution.

The objection has been raised that the Carrel-Dakin method is useful in war wounds, but is impractical for civil practice. That is true as far as office work and use in the home is concerned, because of its instability and the difficulty of its preparation, but does not hold good for hospital cases, where proper facilities are obtainable for regular administration. Infections met in civil practice are much less virulent than those of war wounds, and respond more readily to the treatment. Another factor that is of the greatest importance is that there need be no delay in instituting the treatment. If the cases are treated soon after injury—i. e., in the stage of contamination, certain ones may have a debridement and primary suture, while others may be sterilized and have an early secondary closure. The possibility of converting a severe compound fracture into a simple one at an early date offers the greatest opportunity for decreasing the period of disability of the patient and assures him of a favorable outcome, not to mention minimizing the danger of sepsis, or amputation. This will especially ap-

peal to those who have had cases of osteomyelitis that dragged along for an interminable period. It is applicable to all infected wounds, whether traumatic or operative; to all abscesses, ischiorectal, appendicular, pelvic or other—provided they are well walled off from the peritoneal cavity since it has a destructive action on the peritoneum—and best of all, to empyema. The Carrel-Dakin method of treatment of this condition³ constitutes a real advance and will obviate the necessity of the severe mutilating operations of Schede and Estlander in the attempt to cure long-standing cases. The cavity is sterilized and a secondary closure performed, the expanding lung gradually obliterating it.

Since my discharge from the army in the fall I have secured the necessary equipment for making the solution and have treated at St. Johns Hospital in St. Louis a variety of cases, including compound comminuted fracture, osteomyelitis, ischiorectal abscesses, postoperative infections and empyema, with great success. The entire absence of odor and pus, the small quantity of dressings used, renewed only once in twenty-four hours, the healthy appearance of the wounds, the marked improvement noticeable from day to day and the excellent functional result made possible by secondary suture has won for the method the enthusiastic support of the staff, nurses and patients themselves.

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LARYNGO-TRACHEO-BRONCHOSCOPY.

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In no branch of medicine or surgery in the last quarter of a century has there been more advancement or greater rewards than in the branch which I have chosen as the subject of

this paper. If it has not outstripped, it has at least kept pace with any of the foremost specialties of medicine or surgery. When we look back for only a few years into the past and compare the place where we then stood with that of today, we are deeply impressed and must acknowledge that it is a wonderful age in which to live and that in the world of medicine and surgery we are in the dawn of a new era.

It has now been but little over half a century since Manuel Garcia, a Spanish music teacher, saw for the first time the image of his vocal cords. What a thrill of delight he must have experienced! This was accomplished by the placing of a small mirror in the pharynx and reflecting the image into a mirror in front. What a simple thing it was, yet it was the birth of a science and art that has relieved the world of much of its suffering. It was the birth of laryngoscopy, which was the incentive for further thought and development. Following on the heels of this, there were those who dared to say, demonstrate and prove that we could explore, inspect and examine in the living being the trachea and deep bronchi. Prior to this time it was considered highly dangerous to enter the trachea and bronchi and should not be attempted. Some operators had reported that in trying to do an oesophagoscopy they had through mistake passed an oesophagoscope into the trachea, which was hurriedly withdrawn, and when we consider these ideas which then prevailed the bronchoscopy performed by Killian, in 1897, must have been considered a most daring feat.

I do not wish to prolong my paper by going into detail giving statistics and a complete history of the subject, for to do so would not only be impossible in a paper of this character, as volumes could be written on any part of it, but it would be tiresome. I shall only endeavor to make a short survey of the subject and to touch upon some points which to me appeal greatest and are the most interesting. One of the things which impresses the student in reviewing this subject is the rapid change in technique undergone within the last few years. One can hardly depend upon the knowledge gained in consulting text-

books on the subject, for by the time the book is on the market it has become obsolete, for many of the principles have been discarded by men doing this work for newer and better ones. Another thing which impresses us most is that the advancement in this special field of work, instead of being a continual and gradual evolution, has taken place by very distinct steps, and I will attempt to show why this is true.

I do not believe we are in any other branch of surgery so dependent upon special instruments with which to work as in this one. Not until after Manual Garcia applied the principle of the two mirrors and the presentation of the first model of the head mirror and laryngoscope by Dr. A. Cernac, of Austria, and which marked the first great step, was there any advancement. These simple instruments to the present time have undergone little change, and remain to-day among the most important and constantly used instruments in the physician's armamentarium. There have been many modifications, but the principle remains the same, and it has served the past masters to perform a wonderful service to humanity in the past and with much credit to themselves, but we know the great difficulty and trying experiences of indirect laryngoscopy.

In the second great step, one is somewhat confused as to just where the honor goes, and the history is most interesting and the names of many famous laryngologists cluster about it, but out of the confusion Kirstein seems to have emerged with the most glory, and history gives to him the credit of bringing about the second, the direct method of examining and operating upon the larynx and trachea. This was accomplished by the elongation of a tongue depressor and placing a hood over it. With the aid of this simple instrument he made his name famous throughout the world among laryngologists. It may be of interest to know that at the height of his career, and when he was considered one of the greatest investigators in this line of work of his time, he suddenly quit his profession and devoted the remainder of his life to the art of painting.

Immediately upon the heels of the discovery of direct laryngoscopy, Killian demonstrated that the bronchial tubes could be entered through the mouth, that an experienced laryngologist, well versed in the use of his instruments and the anatomy of the parts, could introduce a tube even into the smaller bronchial tubes for inspection and operation without injury to the patient. In 1897 he entered the bronchus through the mouth and removed a bone of considerable size from the right bronchial tube of a woman. Then followed the rush. Prominent men of the profession throughout the world began to travel to Killian's clinic to learn of the new method, and to-day he is hailed the world over as the father of modern bronchoscopy. The foresight and enthusiasm of Killian have been supplemented by that great inventive genius, Brunings, whose constant and persevering labors have given to the world instruments without which the brilliant work now being performed would be impossible.

After Killian reported his experiences, American laryngologists immediately took up the new method and the earliest report of the successful removal of a foreign body from the bronchi in America, by the direct method, was reported by Dr. Cooledge of Boston; the removal of a part of a tracheotomy tube. This was in 1899. In 1904, Dr. Ingals of Chicago, reported the removal of a pin from the bronchus of a woman. Then Dr. Ingals, with Dr. Jackson, began to improve the instruments and to-day we have many valuable electrically lighted instruments, which are the pride of laryngologists. The reports of successful removal of foreign bodies from the bronchi by the direct method runs into the hundreds, with a mortality rate of less than 4 per cent.

Before going further into bronchoscopy, I wish to take up the third step or epoch. This is the examination and operating upon the larynx and vocal cords with the patient's head in a swinging position—so-called suspension laryngology—and marks the birth of two handed surgery of the larynx in contradistinction to the one-handed type which prevailed up to this time. Here again we are linked with Killian, who made this step possible by the invention of his swinging spatula.

This discovery is quite interesting, as it was made entirely by accident. Killian relates how one day he accidentally made this discovery while having an artist to draw a picture of the vocal cord from a cadaver. He states that he did not have time to hold the mouth open until the artist could finish the picture, and therefore improvised a sort of gallows on the dissecting table and suspended the head therefrom on a spatula so the mouth was forced wide open. Upon walking around to the head of the table to take a look, he was indeed surprised at the excellent view of the larynx and vocal cords that was presented. He immediately set to work and had an instrument maker to construct an apparatus to suspend the head, and when this was completed, started to practice this new method on the living in his clinic at Freiberg. Quite a number of different models were made before finally making his report on the subject and he demonstrated his apparatus for the first time at the International Laryngological Congress at Berlin, in 1911. Specialists from all over the world were in attendance at this clinic and were greatly impressed with the new method and, as is usual, promptly went to work to improve and make better apparatus. Killian himself at a later date made quite an improvement over his first model and this is the one most used to-day. Dr. Lynch, of New Orleans, was among the first to adopt this method and after experimenting with the Killian apparatus for quite a while, modified it to some extent, and claims his modification to be superior in several ways. In this I am not able to judge, as my experience has been entirely with the Killian apparatus. He has demonstrated his new model on many occasions before gatherings of specialists in the largest cities and it has met with favorable comment.

However, that the suspension method of direct laryngology is a distinct advantage over the indirect is self-evident and has won from the profession recognition of its great merit and wonderful advantage. Altho the indirect method of examining and operating served a great purpose and much good has been accomplished by it, and it will continue to be used by a great majority of men who

have used it so long that they will not depart from it now, yet it must give way to the inevitable march of progress and the workers in this special field of the future generation must turn to the direct method in examinations, manipulations and operations upon the larynx. What a contrast when we compare the grabbing, snatching, catch-when-can, hit or miss, strained-eyes-and-aching-arms method of yesterday with that of direct laryngology under suspension! The physician seated before his patient quietly breathing and no need to be in a hurry, knowing that it is beyond the power of the patient to disturb the view by any movement such as coughing or gagging, a clear field and two free hands with which to work! This would indeed be a revelation to the old masters that had to labor so long and work so hard for one quiet moment in which to grab. The suspending spatula has placed the laryngeal surgery upon the same plane as surgery of any other part of the body. Most extensive as well as most delicate surgery may be performed. Tumors may be removed; cysts may be dissected; and malignancies may be destroyed; raw surfaces approximated and stitched; and real plastic surgery can be done. In case of such bodies as pins being buried or where foreign bodies of the impacted variety of whatever shape and description are found, they can be removed without traumatism to the parts and the bleeding vessels picked up with artery forceps and ligated.

In the next and last step in connection with this subject, I refer to the improvement and change of technique in the removal of foreign bodies from the trachea and bronchi. In the past, the subject of foreign bodies in the trachea and bronchi has been given but little consideration in our works on medicine and surgery, except to mention and lay stress upon the seriousness of the condition and the high mortality attending surgical operations for their removal. The reason for this is obvious. It was not given a prominent place in surgery as the contemporary branches, due in a great measure to the lack of surgical instruments developed for this work, the erroneous notions which so long prevailed is to the danger of instrumentation of the trachea

and bronchi, and to the anatomical relation of the trachea and bronchi to the deep and important vessels and organs, which made surgical operations in this region to be attended with much danger and a high rate of mortality. As this branch of surgery is developed to-day, we take special pride, for here the internist's hands were tied and the surgeon dared not to tread.

In my own limited experience of the past few years, I have had to stand by and see, more than once, a foreign body that had gained access to one of the deeper bronchi, an unsuccessful attempt at its removal with its subsequent complication of traumatic pneumonia, bronchiectasis of lung abscess, and a life snuffed out. That to-day would be a simple matter to prevent. I am sure most of us can recall many such cases in the past.

The removal of foreign bodies from the bronchi before the advent of the direct method, was principally done or attempted by first doing a tracheotomy, and if the body was playing up and down loosely in the trachea with each inspiration and expiration, it was sometimes blown out by the first expiratory effort caused by entering the trachea. When this occurred, it, of course, was a most happy termination, but of course this was most often not the case and if the foreign body was not free, but of the impacted variety, and was not blown out by any expiratory effort, and it then had to be blindly fished and grabbed for, through the tracheotomy wound. Many times the efforts were successful, but if the records could be had and were complete, we would be astounded at the unsuccessful attempts of blind extraction which caused the death of patients very soon or later by a traumatic pneumonia, lung abscess, etc. It is this part of the subject that I wish to emphasize, partly because of the minor importance given it in our medical literature, to the removal of foreign bodies from the bronchi, of the erroneous conception which extensively prevails concerning their removal, and the pathological conditions caused by them often misdiagnosed. The condition is more common than is generally believed, and the seriousness of the condition if allowed to remain is not to be

denied nor minimized. In the present developed stage in the art of their removal, if neglected and, at least, an attempt not made at their removal, considering the ease with which it is now being accomplished and the low mortality rate accompanying it when done by those skilled in the art, would be grounds for the severest criticism.

I believe that in the near future we will be having bronchoscopies made as an aid to the diagnosis of many obscure bronchial and lung conditions, for certainly many undiagnosed conditions could be cleared up by a skilled and experienced bronchoscopist, which might not only help to clear up an obscure condition, but would materially aid in the treatment of them. To illustrate: Case of Jackson's:

"Child, age eleven, referred with the following history. At age of one and one half years old, had what the parents thought to be a bad cold, with marked wheezing which never disappeared and was treated for bronchitis, typhoid fever, measles, tuberculosis and chronic asthma, before having a radiograph made, whereas a nail was discovered in the right bronchus. The nail was removed by bronchoscopy, without anesthesia, general or local. It was found embedded in granulation tissue which filled a large abscess cavity on the right side. When cleared of the granulation tissue and the foreign body, the cavity was found to be bronchiectatic in character with polypoid masses springing from a number of points on the wall. The nail was found to be embedded and so corroded during its long sojourn in the bronchus that it pulled apart when traction was made upon it, it being held tightly by the granulating tissue. Blood from the granulations and pus from the cavity and bronchi below it were very copious, but enough rid the blood and pus from both lungs in a very short time and the patient was practically well in six months."

Another: Child, age six years. Diagnosis, bronchiectasis, of which he presented a complete clinical picture, even to the clubbing of the fingers and toes. Notwithstanding this, it was decided that a foreign body should be excluded, a radiograph made and a much corroded nail was seen to be in the right bronchus. The nail was removed by bronchoscopy.

The nail was buried in granulating tissue and resisted removal until the granulating tissue was first removed. For two months the child gained steadily in weight and was rapidly approaching normal when it was suddenly seized with a chill while playing out doors four months later and died a short time after with purulent condition of the thorax. In this case we have a warning not to expect too much, for a damaged lung will not always recover after such a long sojourn of a foreign body. This serves to warn us to at all times to be on our guard, both as to diagnosis and prognosis.

Another case: Age six. About three months previous child had lost a tack which he was holding by his fingers in his mouth. Two days later diagnosed as having "grip" and a week later pneumonia. Chronic cough, with expectorations becoming foul, loss of weight, afternoon temperature 102, with dullness at base of right lung, led to diagnosis of empyema for which a rib was resected. The parents told the numerous physicians under whose care the child had been placed of the accident of the tack, yet none of them deemed it worth while to have a radiograph made. The child was subjected to a thoracotomy with resection of a rib. No pus was found, the pleura being healthy. Firm primary union was obtained. This was the history of the case at the time a radiograph was taken, and the tack was found in the right bronchus. The lung below the tack was quite opaque, evidently from pus and consolidation. A bronchoscope was passed and the tack was removed in half an hour. The tack was seen to be buried in granulation tissue, the point having been ulcerated out into the bronchus to the extent of about seven millimeters from the point. It required most of the duration of the procedure to get rid of the blood stained pus which welled up from the drowned lung below the obstructing body. Each time the tack was moved, a fresh outflow of pus buried it.

It is a cardinal rule in bronchoscopy, that absolutely nothing shall be done only by sight, on the principle of "safety first."

Here is a good place to state that when possible, it is best not to use a general anesthetic.

ie, as the patient will many times aid materially in the removal of pus or blood, while again they may restrain the cough or hold their breath from time to time. The mechanical factor in bronchoscopy is of prime importance. This case points like the others to the urgent need of radiography in every patient where there is a history of a foreign body, and in every case of obscure cough, drowned lung, bronchiectasis, or profuse and foul expectorations, especially in children. It must be remembered also, that there are many foreign bodies that find their way into the bronchi, that do not cast shadows by the x-ray, and that a negative x-ray finding does not exclude a foreign body, which might be easily found by bronchoscopy. Here I would also mention the severe reaction in the bronchi, caused by protein substances often aspirated by children and which set up an inflammation which is characteristic due to the irritative action of their protein.

Jackson has made a very exhaustive study of the action of foreign bodies with protein composition on the bronchi, which present local and systemic symptoms, which are distinct characteristic pathological conditions, and demand, because of their frequency, a place among the diseases affecting the bronchi and lungs of children. Thus it is known that the peanut, a very frequent substance to be aspirated by children, produces an exceedingly alarming and dangerous condition, and to this, the term of, "arachidic bronchitis" has been applied. The symptoms are very interesting but cannot be gone into here.

The removal of foreign bodies from the trachea and bronchi, when successful, is one of the most dramatic and spectacular of all surgical procedures, but when met by failure and defeat, we are confronted with one of the most trying and embarrassing situations that our imaginations can picture. It is this phase of the subject that gives us most concern, and to which the writer has given some time and study with the result that an instrument has been invented, which has been to the originator a source of much comfort and relief. I herewith present it to you, for your consideration.

I have summed up the causes of most failures, due to one or a combination of the following difficulties encountered in the work.

1. The difficulty of seeing a foreign body at the distal end of the tube, when there is a wobbling forceps-carrier in the lumen, not only getting between the eye of the operator and the object, but causing shadows. This occurs, whether a tube with the light at the distal end is used, or one where the light is reflected from the proximal end.

2. It is difficult to know when the forceps are grasping the object as the forceps are obscuring the view at the time of grasping.

In the instrument here presented, the above objectionable features are practically eliminated at one stroke, with no objectionable ones substituted. A combined bronchoscope and forceps that, if the proper size instrument is used according to age, will grasp and hold practically any object, any shape or any size which may be lodged within the lumen of the trachea or bronchi, and at the same time, vision is had through the tube at all times, whether the forceps are closed, being opened, or is open and it can be seen whether or not the object is within the grasp of the forceps as the forceps are never between the object

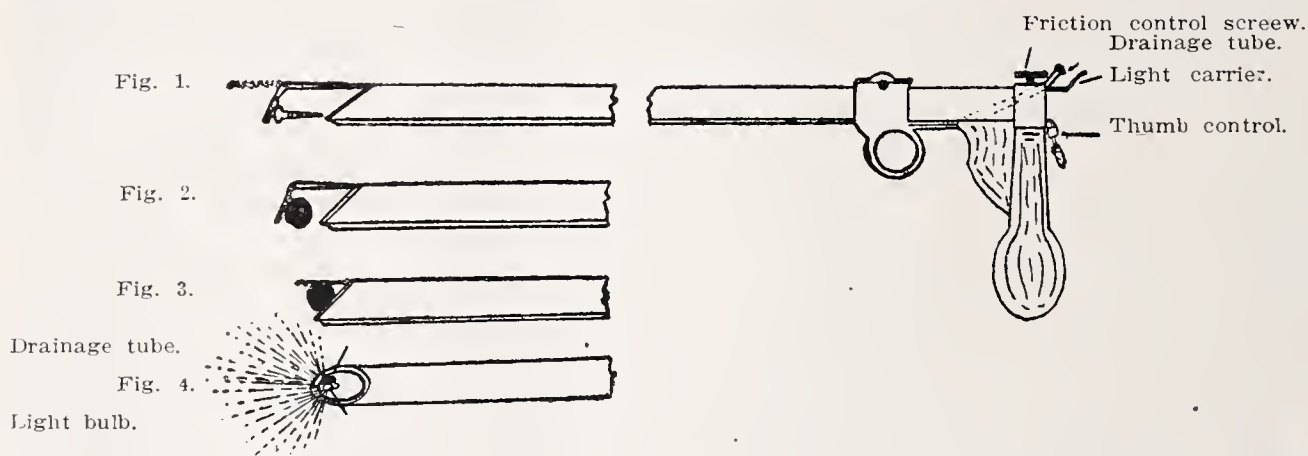


Fig. 1, Forceps closed, after having passed over and beyond the foreign body and beyond the foreign body and ready to draw it into end of barrel. Forceps never gets between the light and foreign body. The dotted line shows position of forceps before it closes down behind the object. Fig. 2, showing action of forceps on object of different shape. Fig. 3, position of forceps on some object, after having rolled it into end of barrel, and ready to be drawn out. Fig. 4, view of distal end of barrel with forceps closed, and showing light bulb, in its relation to opening of drainage tube.

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3. If a tube with the light at the distal end is used, secretions cloud the light. I have been unable to get a tube that would remove these secretions until the end of the tube is completely filled.

4. The difficulty of finding the proper shaped and size forceps to fit the body to be removed at the time we need it.

5. Inability to get the forceps to slide by the object and the consequent danger of pushing it further down, due to the two jaws of the forceps simultaneously passing the object which necessitates a space on each side between the bronchial wall.

6. Almost all forceps made to operate thru' the tube are necessarily small, pointed, and dangerous, especially when clear vision is not had.

and the light. The instrumented is operated with one hand.

The degree and power of the grasp is transmitted to the sense of touch at the finger-piece.

There is less danger of the foreign body being pushed further down into the bronchus, as there is just half the space being taken between the object and the bronchial wall, the forceps are passing it parallel to the bronchial wall, and the process can be carefully watched.

There is little danger of penetrating the bronchial wall and tissue, due to the shape and size of the forceps, the sense to the touch of resistance, and to good vision.

The relation of the light and drainage tube insures the best drainage possible, due to the ...

mechanical arrangement. The secretions are sucked up before reaching the light.

The size of the standard tube has not been to any appreciable extent increased, nor has the lumen been decreased, therefore if occasion should arise where the operator should wish to use some instrument through the tube in the usual way, he can do so.

The power of the grasping forceps can be so regulated that any degree of tension can be obtained upon the foreign object, simply by regulating the set screw at the head of the barrel. This is a very desirable feature in case of foreign bodies of protein composition, which we would wish to remove without crushing. In this case we would simply release the friction screw until just sufficient friction is obtained, which in our judgment would grasp and maintain the body without crushing it.

In case of an impacted body or where due to long and continued irritation it has become imbedded and covered with granulating tissue, the forcep serves as an ever-ready curette, as it can be projected to any desired depth and a simple up, forward and down motion can be obtained. The shape of the forceps makes it admirably suited for this purpose, and the movement obtained is ideal. This process can be watched until the body comes into view.

It might appear to the casual observer, when viewing the forceps, that a foreign body, small and round, would not be grasped by the forceps, but instead would fall back through this opening. This, however, is not the case, as a trial will convince. However, should this be the case, if the body would roll one way, it would also roll the other, hence we would simply lower the proximal end of the tube and allow the object to roll out by gravity. The forceps and whole mechanism seems to adapt itself to most any environment and appeals to the originator as supplying a long-felt want.

CANCER OF THE STOMACH.*

By R. L. Sanders, M. D., and
J. J. McCaughan, M. D.,
Memphis.

A generation ago one would have been much surprised at a surgeon who could select cancer of the stomach for discussion at such a meeting as this. Today we are forced to meet the issue and recognize the enormous percentage of gastric cancer in the diseases of the body, especially in the gastro-intestinal tract. Physicians have estimated the prevalence of cancer of the stomach from 41 per cent down to 10 per cent of all cancers of the body, but an average will probably be about 30 per cent—considerably more frequent in males than in females. This ratio seems quite appalling, especially so as a serious surgical operation must confront the patient if he expects even a chance for cure. Medical measures without complete extirpation of the disease, going well beyond into healthy tissue, are at best only palliative and hopeless.

Forty-one years ago, the 19th of this month (April 19, 1879), Pean of Paris did the first resection for cancer of the stomach, and two years later Billroth followed with his epoch-making operations which have stood the test of time and until recently have not been improved upon. Today his No. 2 operation is very generally used, and in most cases is quite satisfactory.

Statistics show that gastric cancer is increasing in frequency, but whether this is more apparent than real is problematical. There are 200,000 cases of cancer in America continuously, 80,000 of which die annually. Throughout the civilized world there has been an increase in the death rate of from 10 per cent to 25 per cent during the past decade. This increase may be due to better methods of diagnosis, more autopsies, more rigid enforcement of vital statistics or an actual increase in the prevalence of the disease.

The vast majority of deaths from gastric cancer occur between the ages of 40 and 70

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

years, and there is from 10 per cent to 20 per cent higher mortality among males than females. This may be accounted for in the more frequent occurrence of peptic ulcer in men.

Today gastric cancer is reasonably favorable from the standpoint of operation. If physicians generally will be convinced that cures are possible and recurrences not always inevitable, the cases may be treated early enough for favorable results; but if surgical therapeutics is used as a last resort to alleviate pain, to overcome obstruction and to palliate till death closes the scene, then we fail to progress. In order that the best results may be obtained, it is necessary to operate on the cases early before the disease becomes extensive and metastases occur. To this end an early diagnosis is necessary.

The relation of gastric ulcer to carcinoma has long been a debated question. As early as 1840 Rokitsky recognized that cancer might develop on ulcer, and this view has gained impetus constantly since, until now it is fairly well established in the minds of at least a majority of progressive men. I appreciate the fact that many will doubt this statement, but I must also say that "healthy skepticism is a scientific virtue, but doubt, unsupported by facts, is a pernicious habit." Some estimate that cancer of the stomach is secondary to ulcer in 70 per cent of the cases. About all we know of the cause of cancer is that it usually follows chronic irritation. Cancer is frequently found in acid-bearing organs, but is conspicuously absent where alkaline secretions abound. It is fifty times more common in the large bowel than in the small. Trauma also plays a part in chronic irritation, as evidenced by the more common occurrence of malignancy in the lower colon and rectum, which is rather fixed and constantly bruised by hard fecal matter. The mouth, stomach, colon, urinary bladder and cervix uteri are frequently attacked by cancer, but the small intestine seems comparatively immune, the latter being bathed in alkaline secretion. The breast, prostate and fundus uteri seem notable exceptions, but since they are functionally active and short-lived, they seem more prone to undergo de-

generative changes. It is quite notable that cancer of the stomach is so common, and yet the duodenum, which is four times as often affected with ulcer, rarely ever becomes involved in malignant disease. The pylorus seems to be a "dead line" across which cancer dares not pass.

We are living in an age of prophylactic medicine, public health betterment and sociologic uplift. Therefore, when a case of chronic dyspepsia is diagnosed gastric ulcer, it seems clearly a duty to treat the patient surgically in order to exterminate the smoldering fires of a potential cancer. This does not apply to the early, small ulcer which cannot be definitely diagnosed by the history and ordinary laboratory methods, for occasionally such ulcers (?) recover under medical management as outlined by Sippy, Lenhardt and others.

A good history in gastro-intestinal disease is especially diagnostic. In duodenal ulcer it is sufficient to make a positive diagnosis in more than 85 per cent of the cases, but it is often more difficult when the ulcer is on the gastric side and especially so when located near the cardia. In case of cancer the history is not always so valuable, but fortunately here the laboratory aids are helpful, particularly the x-ray.

Smithies, in his recent review of 921 cases, considers five types of histories, but for all practical purposes we will confine our discussion to two—viz.: (a) those with a definite history of previous peptic ulcer with cancer implantation, and (b) primary cancer or cases that prior to the onset of malignancy enjoyed perfect gastric health.

It is interesting to note that approximately four out of every five cases belong to the first group. Gastric ulcers are more common in males of about middle age. They are usually quite chronic and characterized by a definite periodicity of attacks, usually occurring in the spring and fall and lasting from one to six weeks. Most cases recover spontaneously, and in the interim the patient returns to perfect gastric health. It is just as significant for a patient to recover as it is for him to get sick. Pain is usually a prominent symptom during an attack. It is generally

of a gnawing, hunger type, occurring from two to four hours after meals, often relieved by food or alkalis and not infrequently occurring at night. The patient's general health is good and unless obstruction exists, there is not much loss of weight or strength. The ulcer history covers a period of from three to forty years, an average being twelve or thirteen years. Then comes a change to a continuous and downward gastric disorder. The pain becomes more or less constant, food aggravates instead of relieving. There is a loss of appetite and disgust for food. Nausea and vomiting occur in a high per cent of cases, the vomitus being of a rancid, pungent and often very foul odor. This is a typical history of cancer on ulcer, but there are degrees ranging from mild to severe, depending on the location, amount of obstruction, ulceration and mixed infection.

Cases in which the cancer symptoms are primary are usually ushered in as a gastric malfunction, which is continuous from its inception, characterized by anorexia, loss of strength, cachexia, pain (aggravated by food), vomiting, hemorrhage, frequently diarrhoea and occasionally presence of an abdominal tumor. If one critically analyzes these cases, it may be possible to segregate the first part as a short ulcer history, with an early implantation of cancer, but most men believe such cases to be malignant primarily.

Physical examination often reveals but little in early cases. Again, it is so evident that one can almost read cancer by looking at the patient. The anemia, emaciation, presence of palpable epigastric mass, ascites, rectal shelf implantation, supraclavicular nodules and neoplastic hardening about the umbilicus are often prominent signs and make the diagnosis quite easy. When a large tumor is at the pyloric end of the stomach, with associated obstruction, one can often detect visible peristalsis as a wave sweeping from left to right.

Laboratory aids in the diagnosis of cancer of the stomach are often quite helpful. The acids, especially free HCl, usually disappear as the malignancy progresses and in the most advanced cases are absent entirely. Organic acids, lactic acid being the chief one, soon

appear, particularly in cases of obstruction. With such stagnation comes rapid growth of sarcine, Oppler-Boas bacilli, etc. Fresh or disintegrated blood may often be identified macroscopically, though more minute quantities require microscopic and chemical examination for its detection. Occult blood in the stool is usually found, but it is of little diagnostic value.

The x-ray is by far the most reliable aid we have in the detection of cancer of the stomach, both in early and late stages. Filling defect is the most significant manifestation, and it varies from that of a smooth scirrhous to the irregular bordered, extensive cauliflower mass of fungus growth. This filling defect is always constant, does not change its position and is not affected by antispasmodics. Such filling defects may often be simulated by extrinsic tumors, such as pancreatic cysts, enlarged spleen or ovarian cysts, but by careful examination these can usually be differentiated. There are, however, a few cases of cancer involving the lesser curvature and posterior wall where the barium column is in front of the growth, not permitting the filling defect to show on the screen or plate and frequently these escape detection. There are many other helpful signs revealed on the fluoroscope, but they are too unimportant and numerous to mention in this brief discussion. Fluoroscopy is of far greater value than plate work because of the changing details which may be observed as they occur, but the combined use of the fluoroscope and plates increases the efficiency of diagnostic work.

Surgical Management.—One should always recognize contra-indications for operation, but unless such exist each patient with cancer of the stomach is entitled to an exploration. We are frequently surprised at the ease with which large, movable tumors can be resected and real benefits derived in the least hopeful cases. Secondary anemia and extreme weakness may often embarrass the surgeon but if these are due to hemorrhage and a state of starvation on account of pyloric obstruction, the operation can be done in two stages; first, doing a gastro-enterostomy under local anaesthesia and in two weeks resecting the tumor. This may be done quite safely in

many cases, but a one-stage operation is the method of choice. It may even be necessary to transfuse blood the day previous to operation. When ascites is present in considerable quantity, the operability usually decreases in proportion to the amount of fluid. The supra-clavicular lymph nodes often show the metastases and occasionally neoplastic masses are found about the navel, but even in such cases a palliative gastroenterostomy can be done to lessen the immediate dangers and permit the patient to die in more comfort. Following simple gastroenterostomy often patients improve to such an extent that they even hope for a cure.

The anatomical pathology from a surgical viewpoint should be kept in mind. It is important to recognize the glandular locations and modes of extension in order to block off the disease from neighboring tissues, the same as we do in other locations—the lip, for instance. From the fundus of the stomach they drain toward the spleen. The lesser curvature group which also drains the greater curvature, the lymph channels passing up behind, is the one most commonly involved. These represent the principal glands of the stomach. The sub-pyloric group is invaded in more than 60 per cent of the cases, and in many instances is quite accessible for removal. Here one should be extremely cautious on account of the middle colic artery which passes through the vicinity in close proximity to the glands and is the sole blood supply of the transverse colon in four out of five cases. Cutting or tying it would mean a serious consequence, probably necrosis of the segment of the colon it supplies. The neoplasm spreads at the expense of the mucosa and extends to the other layers of the wall; hence the necessity for wide excision. The lesser curvature is the most common site involved and the extension is usually toward the cardia. Therefore, one should go higher up than seems necessary in order to get all the disease and the glands.

Technique.—When the growth is near the pylorus and antrum, resection is a much simpler procedure than when higher up. The disease rarely extends as much as two centimeters beyond the pyloric ring on the duo-

denal side, and hence there is little danger of leaving any involved tissue here, but one should go well above the growth on the stomach side. When the four main vessels are ligated (the superior pyloric, the coronary, the right and the left gastro-epiploic) a clamp should be applied, the duodenum severed near the pylorus and the stump treated by any type of purse-string method that will secure it against leakage. When the tumor is removed from the gastric side, the actual cautery should be used on the severed borders to insure against leaving any cancer cells. The continuity of the gastro-intestinal tract may then be restored by any method most suited to the case at hand. In Billroth's first operation he had trouble with leakage of the suture line where he attempted to close a part of the stomach opening before anastomosing the jejunum and this was known as his "fatal suture angle." His next operation, known today as his No. 2, was completed by closing the entire end of the stomach and making an independent gastroenterostomy with sutures. This improvement in technique was a great triumph and proved successful in practically all cases. Polyo, in 1911, described his operation, which differed from Billroth's No. 1 only in the uniting of the entire stump of the stomach through the transverse mesocolon, as a posterior gastroenterostomy. This seemed to be an improvement over Billroth's work, for it gave better drainage, but it was soon discovered that in a certain group of cases it was not possible to draw the stomach down through the transverse mesocolon to make a satisfactory anastomosis. In 1916 W. J. Mayo devised a still further improvement in which he makes the Polyo type of anastomosis but does it as an anterior gastroenterostomy with a loop 14 to 16 inches long in front of the colon. This was described by Balfour about two years ago and he lays emphasis on the necessity for placing the proximal segment of the jejunum to the lesser curvature of the stomach and the distal segment to the greater curvature in order to facilitate thorough emptying. The mortality is considerably less and the time consumed in performing the entire operation is much reduced below that of any former

type of resection. In our series of five cases we have used this method with no mortality, and the functional results have been perfect.

When the neoplasm is near the middle of the stomach and is resectable, one can do the sleeve or resection-in-continuity type of operation with end to end anastomosis of the two remaining segments of the stomach. Our last resection, about two weeks ago, was of this type and so far the function has been perfect. We have also used it with much satisfaction in cases of hour-glass contraction due to chronic peptic ulcer.

DISCUSSION.

Dr. Seale Harris, Birmingham, Ala.: I have listened with a great deal of interest to Dr. Sanders' most excellent paper, and though not a surgeon, I desire to stress the point brought out by Dr. Sanders—i. e., that any patient past 40, where the diagnosis of cancer of the stomach is suspected and cannot be excluded, an exploratory operation should be performed. Cancer of the stomach is without question a surgical condition, and the sooner it is performed the greater the chance it gives to the patient to live.

I cannot agree with the essayist, however, in his opinion that ulcer of the stomach or duodenum is strictly a surgical condition. I agree that in about one-fourth of the cases an operation may have to be performed; but I am absolutely sure, from years of experience of treating gastric and duodenal ulcers, that at least three-fourths of them can be cured by medical means. I make the statement without equivocation that no case of gastric or duodenal ulcer should be operated upon without having had a thorough dietetic and medical treatment. Some cases can be cured without the patient having to go to bed; but if this fails, and a month or six weeks in bed with a modified Lenharz or Sippey treatment does not relieve the symptoms an operation should be performed. The majority of the surgeons of this country are holding this opinion.

When it can be proven that there is organic obstruction at the pylorus, or adhesions of the stomach to surrounding structures, or marked deformity of the stomach like hour glass contraction, then it is always a surgical condition. It should be remembered that recurrences in ulcers of the stomach and duodenum take place as frequently after gastroenterostomy as after medical treatment; and by means of diet and the use of alkalies everything can be done that gastroenterostomy does, and without any permanent impairment of gastric and duodenal functions.

If an operation is performed it is unquestionably best to resect the ulcer, but this is a much

more serious operation than a simple gastroenterostomy. I think it very important after operation on the stomach to give the diet and medical treatment just as if the operation had not been performed.

The operation for ulcer of the stomach is very different from that of appendicitis. In appendicitis the cause of the trouble is removed, whereas the operation for ulcer does not remove the cause, recurrences can occur. I have seen a number of cases of gastric and duodenal ulcer that have had gastroenterostomy performed by some of the most eminent surgeons of the country, and these patients tell me that within two or three weeks a gastric or duodenal should be careful about diet for a year or more and the cause of the trouble should be carefully sought for and removed if possible. There are some cases that are undoubtedly due to focal infection from the tonsils or teeth. I am convinced, however, that rapid mastication is one of the important causes of gastric and duodenal ulcers.

As to the diagnosis of cases of gastric and duodenal ulcers the symptomatology as described in the average text-book will have to be rewritten before the general practitioner will be able to diagnose ulcers in their early stages. The usual triad of symptoms, pain, vomiting and hemorrhages, are, all of them, late symptoms. There are usually vague symptoms; those described in text-books as due to hydrochlorhydria, that precede by years these text-book symptoms. For instance, the Mayo statistics show that in patients brought to them for operation, the ulcer had existed on an average of nine years; Dr. Finney's show an average of ten years. The average in my cases has been about five years. I think, however, that the gastro-enterologist is apt to get the cases earlier than the surgeon.

In the treatment of gastric and duodenal ulcers there should be most hearty co-operation between the medical men and surgeons. The surgeons should rely upon the medical men for a diagnosis before he operates for gastric or duodenal ulcers; and he should also have a well qualified medical man to diet his patients after operation. The medical men should not delay in advising an operation for gastric or duodenal ulcer when thorough medical treatment has failed to give relief of symptoms, of ulcer, or when symptoms recur after thorough diet and medical regime has been carried out. In my opinion, gastric and duodenal ulcers are not strictly surgical, or strictly medical conditions, but there should be team work between the surgeons and medical men in treating these important conditions.

Dr. R. L. Sanders (closing): I thank Dr. Harris very much for his discussion. I am sure we will always have two sides of this ulcer question—one the medical management and the other the surgical. In my investigations during the past several years I have seen personally many

complete and permanent cures, but most of them were by surgery. I think it is quite true that many cases of gastric ulcer have existed a period of time, and one cannot make a definite diagnosis by laboratory tests and show that the ulcer is there, and in such cases surgery is not indicated. Up to that time I think they can be handled medically. After that they become surgical. I think we all agree with Dr. Harris as to the correct management of the ulcer cases in certain stages, and that they should be handled medically, but there are times when team work is needed for handling these cases. I may say that there is a great deal of difference between treating cases for the diagnosis of an ulcer and those with definitely demonstrable ulcers, like many of those that were shown on the screen. The hyperacidity may be caused by bad appendix or all bladder, which can be simply handled.

VENEREAL DISEASE CONTROL: METHODS, OBSTACLES AND RESULTS.*

By G. A. Hays, M. D.,

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One object in discussing the methods, obstacles and results of the venereal disease program is to bring forth constructive criticism which will enable the Division of Venereal Diseases of the Tennessee State Board of Health and the U. S. Public Health Service to improve the methods, remove the obstacles and thereby secure more satisfactory results. The desired objective can be accomplished when the cause and serious nature of these disease are generally understood; when the necessity for treatment of infected persons is appreciated; when a sympathy and understanding of the general problem is developed; and when each local community has accepted responsibility for enforcing measures that will make the spread of venereal diseases more difficult.

Methods.

The foundation for the plan to be used in combatting venereal diseases in the United States was expressed in the Act of Congress

creating the Division of Venereal Diseases in the Public Health Service. The method was stated as one of the duties of the Public Health Service—"to co-operate with State Boards of Health for the prevention and control of such diseases within the States." The entire program has been created upon this principle.

It should be remembered that at the time this responsibility was placed upon the Public Health Service, the country was involved in war, and there was necessity for immediate action. The fighting forces, actual and potential, urgently required protection. It was, therefore, necessary to launch at once a campaign for the prevention and control of a group of dangerous, communicable diseases which differed from all other communicable diseases for the reason that social, moral, economic, ethical and psychological problems had to be considered in addition to the medical measures. To add to these complications it was necessary to plan a comprehensive and uniform system for the control of the venereal diseases which would be applicable to the entire United States, which could be operated by a practically untrained personnel and which would fit in as a part of the other activities of the State Board of Health. It is evident, therefore, that no easy task confronted the Public Health Service and the various State Boards of Health. The difficult situations were met, however, by concerted action on the part of the State Boards of Health until at the present time a practically uniform method for the control of venereal diseases is in operation in the United States.

It has been customary in discussing the plan to group the various activities as medical, educational and legislative and sociological measures. However, no arbitrary grouping of these measures is possible. Medical effort is, in the best sense, educational. Education in this field includes medical and legislative information, and both are vitally social in addition to the distinctly sociological nature on which the permanent control of syphilis and gonorrhea, as of other communicable diseases, depends. A full explanation of the various methods under these main activities is impossible in this paper, but it is

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

obviously in order to at least mention the most important of them.

The medical measures include the establishment of free clinics; the establishment of facilities for hospital treatment, including facilities for detention and isolation of carriers; the passage of approved venereal disease control laws and ordinances or regulations; the elimination of advertising quacks and the sale of venereal disease nostrums.

Among the educational measures there are the posting of placards in public lavatories; the distribution of educational pamphlets; the distribution of approved books on sex hygiene; the giving of educational lectures; the showing of approved sex hygiene and scientific motion pictures; the displaying of approved exhibits to the public and in schools.

Among the law enforcement measures there are the passage of laws and ordinances prohibiting prostitution; rooming house and hotel licensing laws or ordinances; dance hall ordinances; ordinances regulating taxicabs and "for hire" vehicles; the establishment and maintenance of proper detention facilities; the establishment of rehabilitation facilities; the establishment of institutions for the feeble-minded.

Obstacles.

One of the greatest obstacles encountered has been the reluctance of a certain percentage of practicing physicians to participate whole-heartedly in the program for venereal disease control and report their venereal infections to the State Board of Health. This attitude was expected and is gradually being overcome. The same reaction occurred when tuberculosis was made reportable many years ago, the argument being advanced that a stigma would be placed upon the family by the physician reporting cases of tuberculosis, a stigma which would prevent the social and economic advancement of the tuberculous family. This view has, of course, long since been proven erroneous and now the general population of the country has been more or less educated as to the value of reporting communicable diseases, with the exception of syphilis and gonorrhea.

Reporting by serial number only, except under certain conditions, certainly removes

the objection that professional confidences are violated by reporting gonorrheal and syphilitic cases. The conditions under which the name and address of an infected person are to be reported being the failure of the infected person to observe precautions to prevent the spread of the disease to others or failure to continue treatment, are such as to legally forfeit any personal rights the patient may have possessed. It is a well established principle of constitutional law that no individual right or privilege can be claimed which reacts to the detriment of the rest of the community or the general public.

Reporting by serial number was endorsed by the Public Health Service rather than by name on the first report, as with other communicable diseases, because reporting by serial number furnishes data regarding the prevalence of these diseases, and, further, it was believed to be impossible to quickly get forty states to include syphilis and gonorrhea among the diseases to be reported by name until the program for control of these diseases was better understood and its value more appreciated. The time will come when reliable data regarding syphilis and gonorrhea will be on file in the State Board of Health to show the exact progress that is made in limiting the spread of these dangerous, communicable diseases.

It does no good to point out that all cases will not be reported and that the statistics so secured are of questionable value. For that matter, birth registration cannot as yet be regarded as a distinguished success, and yet no one would argue that we should not attempt to enforce this law.

The betrayal of confidence is a bugbear. This confidence is betrayed every day when infectious diseases are reported, often to the great inconvenience of the patient who must be quarantined. No physician would hesitate to report smallpox or cholera or leprosy, although this betrays the patient's confidence quite as much as if the disease were syphilis. The community is also the patient, and, besides, issues the license which permits us to gain a livelihood, and there should be as much thought about violating the confidence of the

community as about the confidence of the individual patient.

Another obstacle to the progress of the work has been the lack of information on the part of the general public regarding the serious consequences of the venereal diseases. This lack of information has been due partly to the indifference of many physicians towards persons infected with venereal diseases. The method of treatment of individual cases and the advice given for preventing the spread of the infection, has been such as to lead infected persons to regard their conditions lightly. False modesty and prudery have prevented the discussion of these diseases by intelligent laymen, and therefore but little authentic information was available until recently.

This ignorance of the general public has been not only in uneducated persons, but of the business men and leaders of the community. Contrast the opinion of the ordinary substantial citizen of your community with the opinion of the late Sir William Osler, who said: "From the standpoint of race conservation, gonorrhea is a disease of very first rank. It costs the country annually thousands of lives. With 30 to 40 per cent of all congenital blindness, with chronic pelvic mischief in women and with the unhappiness of sterile marriages—with these and other minor ailments scored against it, we may say that while not a killer, as a misery producer, Neisser's coccus is king among germs." Contrast also the view of the business man in regard to syphilis with the aetnal facts in regard to this infection. Comparatively few people realize that syphilis is one of the greatest killing diseases; that all of the deaths now accredited to *tuberculosis* and paresis are due to syphilis; that many deaths now attributed to organic diseases of the heart, diseases of the arteries, aneurism, cerebral hemorrhage, apoplexy, and the nephritides and encephalitis are really due to syphilis.

It may be interesting to know that in an effort to arrive at the probable death rate caused by syphilis, in certain portions of Tennessee, the estimates of leading authorities of the percentage of various diseases caused by syphilis were recently applied to the vital sta-

tistics. A detailed description of the plan is impossible in this paper. However, it was found that the probable death rate due to syphilis was approximately 30 per cent.

All of this ignorance of the venereal diseases is rapidly being overcome by the educational campaign carried on by the State Board of Health. In the educational campaign the previous reticence of newspapers and other publicity agencies in informing the public regarding sex problems is being rapidly overcome. In this state almost without exception, the entire co-operation of the papers of the large cities has been obtained. In addition to developing proper publicity leading to the discussion of these diseases, it is necessary to restrict the misleading publicity given to remedies for self-treatment of the venereal infections and the false statements of unscrupulous persons promising impossible cures.

Another obstacle to the successful prosecution of the program for venereal disease control has been the mistaken opinion held by many honest persons that regulated prostitution is necessary and cannot be eliminated. The results of following this opinion has been responsible in many communities for hindering the venereal disease control program of the State Board of Health. It is not within the purview of this paper to enter into a discussion of this problem. But it must be stated that as far as the best statistics obtainable show, it is a demonstrable fact that the incidence of venereal diseases is directly proportional to the amount of commercialized prostitution in the community.

Another obstacle in the program of the campaign has been the hesitancy of local health officers to assume any function which would tend to indicate that they were parting from the usual methods of controlling communicable diseases. For instance, some health officers believe that it is not the function of the health authorities to be interested in the operation of laws having for their purpose the abolition of prostitution, this being regarded as strictly a police function. As a matter of fact, all of the power of the boards of health are police powers, and the laws enacted for the elimination of prostitution

are, so far as health departments are concerned, laws to prevent or at least make more difficult, contact between healthy persons and persons infected with dangerous communicable diseases. When health officials accept this viewpoint, considerable progress will be made in controlling venereal diseases.

Results.

The results to date of the co-operative work of the U. S. Public Health Service and the Tennessee State Board of Health for the control of venereal diseases cannot adequately be summed up with statistical data, but some of the outstanding facts may be briefly mentioned. The reporting of venereal diseases by physicians of the State is on the increase, both in the number of physicians reporting and in the number of cases reported, because more physicians are making their reports and because some physicians who formerly reported only a few of their cases are now reporting all of them. From September 1, 1919, when the system was inaugurated, until March 1, 1920, 4,501 cases of venereal disease were reported, as follows: Gonorrhea, 2,538; syphilis, 1,570; chancroid, 393.

The figures show how plainly syphilis and gonorrhea are regarded by both the laity and physicians. It is generally believed and accepted as a fact that there are at least five times as many cases of gonorrhea as syphilis, but these figures show that the number of cases of gonorrhea reported exceeded those of syphilis by only about 75 per cent, not even twice as many.

Another evidence of progress is the manner in which venereal disease clinics are being established and maintained. At present there are five clinics in three cities of this State, in which there have been 997 cases of venereal diseases treated as follows: Gonorrhea, 477; syphilis, 433; chancroid, 66. This means something like 20,000 treatments, including nearly 2,000 doses of asphenamine. While the total number is small, it is significant to note that very substantial progress is being made towards securing prompt and efficient treatment for indigents and delinquents. (Note: At the time this was written the clinics had been in operation for a short time.)

The results of educational and publicity measures cannot be adequately expressed in figures. However, it is notable that 22,080 pieces of literature on the question of venereal diseases have been distributed and approximately 40,000 persons have been reached by addresses, exhibits and film showings. The real effect of this widespread publicity can never be definitely known, but all those in close touch with the problem know that one effect has been to greatly stimulate interest on the part of the general public in this phase of public health work.

The problem of preventing venereal diseases has been removed from the list of neglected opportunities and made one of the principle phases of preventive medicine toward which it is no longer possible for the individual physicians or health officer to maintain an isolated or indifferent attitude.

To those who would assume such an attitude it will be significant that organizations representing influential commercial, political, social and industrial interests, cognizant of the necessity of and the benefits of the proper prosecution of venereal disease control, are assuming the initiative in the work. One phase of the work was a plank in a recent municipal election platform. In another city the commercial club influenced official recognition and support of the activity. In the last few days the League of Women Voters voluntarily assured the Division of Venereal Diseases of its hearty support and offered its influence in the passage of venereal disease control legislation.

Conclusion.

To sum up briefly, it may be stated that the method was definitely determined by Congress for the prevention and control of venereal diseases.

All obstacles will be entirely removed if sufficient funds are provided to employ trained personnel to actively stimulate the various phases of the work, and if sufficient interest is manifested to assure the passage of the proper legislation.

The result is that the work has acquired such a status that it is absolutely out of the question that it should ever be discontinued

or even seriously interfered with. Therefore, may we not confidently look forward to the future with the assurance that all physicians will do their utmost to aid in meeting today's world problem in disease prevention.

DISCUSSION.

Dr. S. S. Marchbanks, Chattanooga: Dr. Hays says the desired objective in the control of venereal diseases can be obtained when the cause and serious nature of venereal diseases are generally understood. This is the very thing that is the greatest obstacle to the prosecution of the venereal disease campaign. However, as a result of the work of the U. S. Public Health Service, the public is waking up, and when they do, those in authority had better be awake to the necessity of financing clinics for the indigent and delinquent patients and detention homes for carriers of venereal diseases and making of laws and ordinances to cover the needs of such a program for combating the spread of gonorrhea and syphilis.

The recent war preparations necessitated the fight on venereal diseases for the protection of the military forces primarily and the civilian population secondarily, and this has resulted in an awakening the public to the seriousness of the condition that exists in this country, and it is going to be up to physicians to answer their questions.

For a few months after the war there was, it seemed to me, a sort of reaction against the active prosecution of the anti-venereal disease campaign noted among some of the authorities as well as certain elements of the public but better judgment has prevailed, and I am now confident that the work will never retrogress. Within a reasonably short time every city will have venereal clinics and detention homes, and the smaller towns will have some means for handling their indigent and delinquent venereal disease carriers. By the delinquent cases I mean those patients who begin treatment with their physician and for some reason (or for no reason) stop coming regularly for treatment as instructed. These cases should be reported by name to the State Board of Health if they stay away over seven days, unless due to other sickness, or cause as good, and followed up and forced to either return to the original physician, or some other one, or go to a clinic. I say these cases **should** be reported—they must be reported, since this is a legal measure now and with a penalty for neglect.

Dr. Hays gives a brief outline of the necessary medical, educational and law enforcement, mentioning in connection therewith the establishment of rehabilitation facilities and institutions for the care of the feeble-minded. I am glad to say

that the city of Chattanooga has in operation practically all these measures except the last two as a result of her own efforts, and the co-operation of the U. S. Public Health Service, which took charge of the Fort Oglethorpe extra cantonment zone health activities late in 1917 on account of the military forces under training there. This zone took in the city of Chattanooga. This leaves Chattanooga far ahead of most of the Southern cities, and she will probably rank as high as any city in the United States in the grading of cities that the U. S. Public Health Service will do in the next few weeks. The commission government of Chattanooga has passed practically all the regulating ordinances required by the National Division of Venereal Diseases, such as a general venereal disease control ordinance, hotel and rooming house licensing ordinance, taxicab ordinance, dance hall ordinance, and will build a detention hospital this year.

Dr. Hays, representing the U. S. Public Health Service and State Board of Health, has helped very materially to keep the work going, for after the war, as mentioned, there was considerable danger of a discontinuance of the program.

There is another man in Tennessee who deserves a great deal of credit along this line for the backing he has extended to the new division of the State Board of Health, and this man is Dr. Olin West. He can never be paid for the good he has done Tennessee, any way.

In regard to the reporting obstacle, as mentioned by Dr. Hayes, again, of course no physician can reasonably object to reporting all cases by serial number who stay with him, and there is no way for the State Board of Health and local health authorities to go after the delinquent cases unless their names and addresses are promptly reported. It is of vital importance that the State Board of Health, then that patient may in order to compile data that is of incalculable value to us as to the incidence of venereal disease, as such and as a primary or secondary cause of death.

Another important feature is that when a syphilitic stops treatment before discharged by his physician as cured, if the case is not reported to the State Board of Health, then that patient may go on and develop tabes or paresis and become a burden on his family or the State. It would be far more economical to force such patients to be treated.

Dr. Hays says he has worked out a plan by which he estimates the percentage of deaths due to syphilis at 30 per cent. I knew it was high, but it certainly jars me to find that almost one out of every three deaths is due to syphilis.

It is presumed that Dr. Hays in referring to the number of cases means the number since the creation of the Division of Venereal Diseases of the State Board of Health.

The Chattanooga venereal disease clinic began work in February, 1918, and to April 1st has treated 2,989 patients and given 79,542 treatments, including 4,993 doses of arsphenamine. Of the 2,989 patients there were about 50 per cent who had both gonorrhea and syphilis, making a total of 4,483 cases.

Dr. H. M. Tigert, Nashville: These gentlemen are striving to do a work in Tennessee that is of the very greatest importance. I think that Dr. Hays is to be highly commended for the able manner in which he has presented this matter, and that his strong stand against venereal disease in this State should be endorsed by the entire medical profession. Such an undertaking is no small matter, which will be readily appreciated by any who have ever attempted public health service in any form.

It is as little as the medical profession can do in a matter of such gravity to give workers in this field full and hearty co-operation, so that the greatest possible protection from the spread of venereal diseases may be accorded society. It is well known by all who have made the slightest investigation that the ravages of venereal disease are appalling. The medical profession is exercising its greatest good and displaying its greatest service in prevention. The venereal field offers no exception to this rule.

Time was when public discussions along this line were tabooed. Venereal disease was considered a necessary evil, the result of which must not be revealed, and that humanity should submit without raising a hand. Fortunately that day has passed, and practical work along preventive lines is being encouraged by every enlightened community. I arose to make a plea for co-operation with the men engaged in fighting this scourge, which can best be done by reporting all venereal cases as required by law.

CLINICAL REPORTS

CASE REPORTS.

By W. A. Bryan, M. D., F. A. C. S.,
Nashville.

Case No. 1, a Moonshiner.—Age about 23. Was shot with a .38 calibre pistol in a moonshiners' fight in February, 1920, on Tuesday afternoon about 2 o'clock. His brother was shot and killed. The patient remained in the woods hatless and coatless all night Tuesday night and was discovered by searching party Wednesday morning about 10:30 o'clock. He was standing holding to a sapling with his

right arm. He was carried home and the end of his life was momentarily expected, but failed to show up. They decided to bring him to me Thursday afternoon, but found that the decision was reached too late to make the train. Then they came on the Friday afternoon train, which reached Nashville about four hours late. I saw him at about 10 p. m. on Friday. He had been shot from the front, the ball producing a brush wound on the tip of his nose, perforated the right eyeball and entered the cranium through the roof of the orbit and through the brain, emerging at the right parietal eminence. The wound of exit was very large and covered with hair, clotted blood and devitalized tissue, largely brain. There had been evidently a large amount of brain tissue lost. Considerably more flowed out during the operation. A dressing had been applied, but I do not know the details. At least it must have been clean, judging by subsequent results. His pulse was good but his left side was paralyzed. He was immediately anesthetized with ether and a rapid but thorough preparation made, and the wound enlarged. The looser fragments of the bone were removed, the accessible cavity swabbed with iodine, the wound sutured and gauze drainage produced. A bad prognosis was given as to life, a worse one given for the left-sided paralysis. He was returned to bed in good condition. The next morning he was better and continued uninterruptedly to recover and left the hospital at the end of eighteen days. Sensation and motion had returned to his leg before he was dismissed, and I was reliably informed two months ago that function was returning to his hand. The degree of this function I do not know, neither do I know whether it embraced sensation.

I had a similar case some nine years ago, shot in the right frontal eminence and ranging to the left, making exit in the left temporal region, and destroying the pole of the right frontal and practically all of the left frontal lobe. This calibre was 44. He recovered; and just as in this case, reported above, the people at home said they could not tell any difference in his intellectuality, although that proves nothing. This latter case lived some

months and died suddenly after returning to college to complete his business course. I do not know the cause of death.

Case No. 2.—In 1918, during the heavy influenza work, an emergency case, a woman about thirty years of age, was brought in a Ford automobile to the Woman's Hospital. The doctor was too busy to write or call or come. The only communication I had from him was the statement of the woman's ignorant husband that the doctor sent me word it was appendicitis. The history was unimportant, except that she had had an attack of colic about one year before this time, and that she had subsequently developed an abscess in the right gluteal region which healed readily after incision by her physician. She gave now a history of a second attack of colic and within a few days the development of a second gluteal abscess. Examination revealed no evidence of intra-abdominal disease. I told her husband so and advised opening the abscess and drainage. But he insisted the "Doc" had said she would not get well unless I removed the appendix. I finally agreed to do so, against my judgment, because I had great faith in the doctor who had seen her. My fears were that the husband had not understood the doctor. I opened the abdomen, found the appendix lying external to and behind the caecum. It was inflamed and adherent with its distal end lying fixed in an open Petit's triangle. When the appendix was removed pus welled up from the abscess cavity through the triangle into the abdominal cavity. The opening was plugged, the abdomen was closed, and an incision made into the abscess. The pus laid beneath the muscle and the opening, from the abscess cavity into the abdomen was large enough to admit the index finger easily. The plug in the triangle was removed and the drainage tube inserted through the abscess cavity and the triangle into the abdomen. She made an uneventful recovery.

Case No. 3.—A young married woman, age 25, came to this city in the summer of 1919 to consult a physician on account of rheumatism. She had been suffering a year or more and had become practically helpless. Her joints in general were affected, but especially

those of her hands. Her hands were as stiff as pokers, swollen and very painful, especially on motion. She had had treatment at home and in Nashville without improvement. When called in consultation I concurred in the opinion that a chronic cholecystitis was probably serving as a focus which served as a cause for her rheumatic condition. This conclusion was reached on the hypothesis that a focus of infection must be present, because no other focus could be found, and because she was definitely, though moderately tender over the gall bladder and at Robson's point. There was no history of typhoid or other continued fever; no history of jaundice, colic or indigestion. She was admitted to the hospital and had the routine laboratory work, which revealed nothing. Wassermann was two plus. We could not believe that this was true, but felt impelled to give her the benefit of the doubt. Salvarsan and mercury were administered with absolutely no improvement. In fact, she seemed to grow worse, and certainly grew weaker. After spending a couple of months at home on anti-syphilitic treatment she returned to the hospital and I operated, doing a cholecystotomy. There were no adhesions and the gall bladder was not appreciably altered. Culture from the gall bladder gave pure culture of *staphylococcus aureus*. The bile was rather dark and sooty in appearance. Immediately after recovery, she was improved, and in three days from the operation all pain and swelling had disappeared, and she was able to use her joints normally. These symptoms did not return while she was in the hospital. She left the hospital about four weeks from date of operation; at this time drainage had ceased. After her return home she continued to do well for two or three weeks, and then developed what was diagnosed an abscess in the gall bladder region, and had at the same time a recurrence of her rheumatic symptoms, together with the old swelling. The abscess was opened and drained by her family physician and healed, but the joint symptoms did not improve. About six months after the first operation she returned to me and had a cholecystectomy. This time her improvement was definite, more slow, and not by any means

so satisfactory as before, when she had the gall bladder drained. I am not comparing the two operations with the view of making choice between them. She continued to have her symptoms and when she was sufficiently recuperated had her tonsils removed under local anesthesia. This did not make an appreciable acceleration in the rate of her recovery. Finally, she went home and her family physician reports that he believes that she is surely making progress and that she will eventually be a well woman. This case undoubtedly proves that clinically there is such a thing as focal infection. It also seems to me to prove that if I had removed the gall bladder at the first operation she would have been better off than as it was, although it seems from the evidence present that we were going pretty far when we gained our consent to drain. Hereafter I shall, wherever possible, remove the focus of infection, if the operation is undertaken with a view to relieve remote symptoms. It seems to show furthermore that the tonsillectomy was a superfluity as no increase in the rate of improvement followed this procedure. Tonsillectomy should not be considered too lightly here, however, inasmuch as it removed another possible source of infection from a patient who manifestly was very susceptible.

Case No. 4.—A married woman 46 years old came for relief of continued vomiting of everything ingested. The diagnosis by her physician was gastric ulcer. After complete examination, we concurred in the diagnosis, but considered her too weak to undertake operative measures if she could possibly be nourished. We succeeded only poorly in this, and after a ten days' effort decided it best to operate. She was desperately weak and complained of disability to use herself satisfactorily. This we attributed to weakness. She complained, too, of pain in her body generally. On opening her abdomen the probable plan was to do a gastroenterostomy. However, on looking below the transverse colon for the beginning of the jejunum I failed to find it; again a failure; a third failure; careful search and no small intestine could be found emerging from the transverse mesocolon. I then returned to the pylorus, where

the ulcer had been found, and traced the duodenum, or what should have been duodenum, and found it passing free into the abdominal cavity with a meso of its own. The colon in its rotation had failed to cross the small intestine and left it free to pass into the cavity at the pylorus. I did a gastroenterostomy (posterior), the stoma in the gut being made about eight inches from the pylorus, anastomosing across the gastro-hepatic omentum instead of across the mesocolon. She recovered normally and began to take food in a satisfactory manner. Vomiting ceased entirely. The pain and weakness continued and paralysis in both upper and lower extremities supervened shortly. Her condition was diagnosed as multiple neuritis in consultation with an internist and a neurologist. She was sent home and a communication from her physician six weeks after operation stated that the stomach was functioning all right, but that her neuritis was unimproved. It is unfortunate that we could not have recognized her nervous lesion prior to operation, but its recognition would probably have prevented from doing a surgical procedure which undoubtedly has prolonged her life and made it possible from a nutritional viewpoint for her to recover. This was not possible in her former state.

CHANGED TO GREENEVILLE.

The East Tennessee Medical Society will meet at Greeneville on September 30 and October 1, 1920. This meeting was to have been at Jonesboro, but it was thought better to go to Greeneville because of the better hotel facilities. The East Tennessee Society is a going and a growing organization, and the attendance at its meetings is always large. The medical profession of Greene County is made up of a fine body of men who believe in medical organization. We predict that the Greeneville meeting will be a brilliant success from every standpoint.

Dr. C. T. Carroll, of Morristown, is President, and Dr. G. Victor Williams, of Chattanooga, is Secretary of the East Tennessee Society. Practically all the counties in East Tennessee are represented in the membership.

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee

Office of Publication, 327 7th Ave., N., Nashville, Tenn.

AUGUST, 1920

EDITORIALS**LIST OF MEMBERS.**

A list of names and addresses of the members of the Tennessee State Medical Association will appear in the September Journal, or in that number and the October number. An earnest effort has been made to enter the name and address of every member correctly. We hope that the list to be published will be carefully examined by county secretaries and by individual members and that any errors found will be promptly reported.

It sometimes happens that the address of a member is incorrectly reported by his county secretary. It occasionally happens that a county secretary fails to report all of the members of his society to the State Secretary. It sometimes happens that a man thinks he has paid his dues when he has not. And once in a while the office of the State Secretary makes a mistake—God help us!

The present enrollment of members is larger than ever before at a corresponding date, but there are yet many names missing which should be on our roll. Watch the list next month, see if your name and address appear correctly, examine it for missing names which should be there and then help get them all on as paid-up members.

PAPERS.

Several papers were read at the annual meeting at Chattanooga which have not yet been put into the hands of the Secretary. These papers are a part of the transactions of the Tennessee State Medical Association, and those who read them are obligated to send them to the Secretary for publication in the Journal.

There were, also, several papers prepared for the Chattanooga meeting which were not read because the writers were not on hand when they were called on. These, too, should be sent in.

Sixty-eight counties in the state have medical societies, most of which have monthly or bimonthly meetings, and some of which have weekly meetings. Many good papers are presented at these meetings, some of which, at least, would help to make the Journal better.

There are many men in our society who can and who should contribute original articles to the Journal. Few, indeed, of our best men ever voluntarily offer anything.

The Tennessee State Medical Association can have as good a journal as any if the members will just contribute the material.

NOTES AND COMMENT.

The Tennessee State Medical Association now has more members than ever before at a corresponding date.

Smallpox is still prevalent in several Tennessee counties. The medical profession of the state has a solemn duty to perform in this connection. Vaccinate the unvaccinated among your people who depend on you for guidance in the proper protection of their health.

You know something that the rest of us would like to know. Send it to the Journal.

Some months ago we classed the millionaire and the hobo ahead of the registered nurse for independence. The income tax and other war taxes have knocked off the millionaire. The hobo has gone to work. The average registered nurse is in a class all by herself now.

The Southern Medical Association will meet at Louisville, Ky., November 15-18. A large attendance is looked for, and the officers of the Association advise that hotel accommodations should be reserved early.

Don't forget birth registration. Make out the certificate while you are waiting to see if everything is right.

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ISSUED MONTHLY, under Direction of the Trustees

OLIN WEST, M. D., Editor and Secretary

J. F. GALLAGHER, M. D., Associate Editor

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NUMBER 5

TINCTURE OF DIGITALIS.

By Sam P. Bailey, M. D.,
Nashville.

Simplicity and accuracy in the administration of digitalis are greatly to be desired. This drug stands out above all cardiac tonics in value, but, due to its innumerable preparations, a great deal of confusion exists as to the relative strengths and uses of the different forms. The same difficulty was pointed out in 1785 by Wm. Withering, father of digitalis therapy, who may be quoted as follows: "The ingenuity of man has ever been fond of exerting itself to vary the form and combination of medicine. Hence we have the spirituous, vinous, and acetous tinctures, extracts hard and soft, syrups with sugar or honey, etc., but the more we multiply the forms of any medicine the longer we shall be in ascertaining its real dose." The best results are obtained by using a single preparation, knowing its strength and the amount necessary to produce full therapeutic action.

The most widely used digitalis preparation is the tincture, which is an alcoholic solution of all the active principles of the powdered digitalis. The U. S. P. preparation represents ten per cent of the drug in a menstruum of seventy per cent alcohol. The average high-grade tincture is of good quality and varies only moderately in strength, but preparations bought from the market at large have been found by many observers to vary as much as four hundred per cent. Variations in strength are due to variations in the crude drug, to the mode of preparation, or to deterioration. Even tinctures made from a stand-

ard leaf or from the same leaf, according to the official method, may vary in activity. It is common for retail pharmacists to disregard the directions of the pharmacopoeia and to prepare a so-called tincture by diluting the fluid extract ten times. This is in no sense an official tincture, and its use should be discouraged. The fluid extract or mother liquor from which this is made is rarely as strong as the leaf, some of the active principles being precipitated in the concentration, and it undergoes deterioration on account of its low alcoholic content. Many pharmacists recommend this preparation because it is made up fresh each time it is dispensed, while they think that their official tincture which has been in stock for some months has deteriorated. Goodall, Hayes, Hale and Match-er find no change in the official tincture at the end of one year. Hale reports two eight-year-old specimens, and Symes one twelve-year-old specimen still about standard strength. Deterioration in the official preparation is only minimal in amount, if protected from air and sunlight, but if the alcoholic per cent be lowered by mixing it in a prescription, a loss of strength occurs in a few days.

In order to avoid variations in strength, the best pharmaceutical houses place standardized official tinctures on the market. These are of practically uniform activity. The standardization is done by both chemical and biological means. The former consists in the estimation of the digitoxin, the most active glucoside in digitalis. This method is of little value, as it has been shown that the activity of the preparation does not depend entirely on the amount of digitoxin present,

and that the methods for the quantitative estimation of that glucoside are uncertain. The biological methods, which test the total activity, are best. These methods are useful in determining the physiological activity of a preparation and in detecting deteriorations and adulterations. The tests in mammals are to be preferred to those in the lower animals, because the tissues and their reactions more closely resemble those found in man. The mammals most commonly used are the cat and the guinea pig, but the latter animal is not very satisfactory, as its reaction to digitalis is by no means constant. The cat method, described by Hatcher and Brodie, is the best biological method. It consists in the injection of the drug into the femoral vein of a cat until death results. "A cat unit may be defined as that amount of the drug which is just sufficient to kill one kilogram of cat when slowly and continuously injected into the vein. This is expressed in terms of mgms. of the drug." The good grade tinctures tested by Eggleston averaged one cc. per kilo cat. Recently a few manufacturers have used this, but the majority still adhere to one of the frog methods. There are three general frog methods and several subdivisions of each of these, and a great deal of confusion exists as to what comprises a frog unit. The strength is sometimes expressed in H. T. U. (heart tonic units), which are ten times the M. L. D. (minimum lethal dose) of a frog. The standard tincture has about six and two-thirds H. T. U. per cc. In comparing these different methods Eggleston found in tinctures whose relative value was tested chemically for digitoxin and biologically on frogs, cats, and men, that the relative values of the several tinctures as determined in the cat method was much nearer that in man than when tested either by the chemical or frog method.

The tincture of digitalis has many advantages over the other galenical preparations, the glucosides, and the proprietary preparations. Sir Jas. MacKenzie writes as follows: "The form of preparation I have used as standard is the tincture, which I have never yet found to fail me. If it can be obtained of a guaranteed strength, well and good, but I soon find out whether it is active. I use the tincture be-

cause it is the handiest and most reasonable in price, a very important consideration to the general practitioner in practice among the working classes." Other official preparations, as the extract, fluid extract, and powder, have a greater strength and their dosage is more difficult to regulate. The tincture is of more uniform strength than the fluid extract or the infusion, and on account of its high alcoholic content, does not deteriorate so readily.

The same physiological reaction is produced clinically by the isolated glucosides and by the tincture, and the disagreeable symptoms are not avoided by their use. They have been introduced under the names of digitoxin, digitalin, and digitalein, but, generally speaking, the commercial products are mixtures and not the pure active principles. Digitoxin is an exception to this and is effective. Its dose is very small maximum of 0.5 to 1.0 mgm., and it is too toxic a substance to be placed in the hands of an untrained person. In contrast to the digitoxin, the preparations sold under the name digitalin are weak, being mixtures of digitalin and digitalein. MacKenzie found their use by hypodermic injection irritating and ineffective. Of the three, digitalein is the most unsatisfactory, as it is weak and poorly absorbed. Combinations of these have been produced and usually appear under some trade name.

Many extravagant claims, without any satisfactory basis, have been made for each individual preparation of digitalis. The manufacturers advertise that in the manufacture of their product the inert and toxic materials are precipitated, leaving only a solution of the active principles which clinically causes no toxic symptoms, either gastro-intestinal or cardiac. In regard to the preceding statement, it may be replied that the toxic effects on the heart and the therapeutic effect have the same physiological basis and vary only in degree. Eggleston, using the pure glucosides, produced the toxic effects on the heart, and also the gastro-intestinal disturbances. Preparations that did not have this effect were weak or were not absorbed. He, together with Hatcher, proved that the gastro-intestinal symptoms are not produced by direct effect on the mucosa of the alimentary tract, and that they can be avoided neither by the

use of a preparation free from fats or saponins nor by giving the medication hypodermically. The use of these supposed nonirritating preparations intravenously is said to give a very rapid reaction; this method of administration is not for general use, and it may often be avoided by the use of large single doses of the tincture orally. When taken by mouth, Haskell, McCants, and Gardner found that the tincture was absorbed as rapidly or more rapidly than the proprietary preparations. Some of the best known of these proprietary drugs are "digitol," "digalen," and "digi-puratum"; the remainder may be roughly classified under these types.

Digitol, fat free tincture of digitalis, is supposed to be less irritating locally, both on the gastric mucosa and the subcutaneous tissues, than the tincture. Hatcher, working with the fat from digitalis leaves, could produce no local irritation and considered it nontoxic in amounts found in therapeutic doses. Digitol's strength, when assayed biologically by Hale, was one-half that of the tincture, and after two years a thirty per cent loss was present. Roth found variations of two hundred per cent in strength, and only two out of his thirteen specimens of fat free tinctures were of U. S. P. strength. There was a marked deterioration in five months.

Digalen, the soluble digitoxin of Cloetta, is weak, variable in strength, and not a stable preparation. Clinically, in a series of eighteen cases, Mueller observed digalen to be one-third the therapeutic strength of the tincture. When tested biologically by Hatcher, it was found to be one-fourth the advertised strength. Different samples were reported by Hale to vary in strength and to deteriorate fifty per cent in three years. Many instances are reported in literature of thrombosis from its use intravenously, and Janeway observed its action to be no less irritating locally than the tincture.

Digipuratum, made according to Gottlieb's formula, represents the crude drug minus certain inert and toxic substances. Its tablet and powdered forms are remarkable for their uniformity of strength and stability. When given it is not absorbed any more readily than the tincture. By hypodermic administration it is less irritating. It possesses no especial

advantage over the tincture and is much more expensive.

The tincture is best given by mouth. Eggleston found it not directly irritating to the gastric mucosa; vomiting, when not previously present, did not immediately follow doses up to fifteen cc, and vomiting, coming on late, was central in origin, occurring after the absorption of the drug. It is fairly rapidly and uniformly absorbed from the gastrointestinal tract. Its rate of absorption was experimentally more rapid than that of the infusion, and equally as rapid as the other preparations. Rectal administration may be resorted to when the patient is vomiting, due to splanchnic congestion or some evident cause and there is little chance of retention of the medicine if given by mouth. To prevent irritation, the tincture may be mixed with a little starch, a few ounces of milk, or some other bland substance and slowly introduced into the rectum. Subcutaneous use is often painful and, while absorption takes place, it can not be advised, because an abscess or slough sometimes forms at the point of injection. The intravenous administration of the tincture has been resorted to for rapid action, but is not without some danger. The indications for hypodermic use have been greatly lessened because rapid action can be obtained from the drug when given by mouth in proper doses.

Digitalis should be given until some physiological reaction appears, whether this is full therapeutic effect or early toxic symptoms. In cases that are benefited by this drug, the therapeutic may precede the toxic symptoms; however, MacKenize and Cushny find that the best effects on the heart are often after the onset of some gastro-intestinal disturbance. Clinical evidence of therapeutic action may early be noted from voluntary statements of the patient, as to improvement in respiration and cough, ability to lie down in bed without a sensation of smothering, disappearance of epigastric fulness and pain, and less palpitation and distress on exertion. The physical signs are those of improved circulation. The most common are slowing of respiration with subsidence of dyspnea or orthopnea and the clearing up of rales at the bases of the lungs. In auricular fibrillation the ventricular rate is

characteristically slowed with a diminution in the pulse deficit; in cases with a regular rhythm, MacKenzie, Lewis, Cushny and Cohn did not observe slowing to be a constant feature. This was especially true in cases with only a moderate acceleration. There may be an increased urinary output with lessened oedema and a reduction in size of the liver. Some of these signs and symptoms appear in various combinations in each individual case.

Just as important as the foregoing are the early toxic signs, which are a positive indication for the temporary cessation of digitalis administration. These first appear as a loss of appetite, headache, dizziness, then nausea and vomiting, and sometimes diarrhea. The pulse may drop below fifty. A regular rhythm becomes irregular with phasic arrhythmia, multiple extrasystoles, and dropped beats or partial heart block. In auricular fibrillation the ventricular rate is slowed and the pulse beats may be coupled, *pulsus bigeminus*.

The total amount of the tincture necessary to produce physiological reaction is directly proportional to the weight of the patient. Eggleston, in twenty-five courses of oral administration of several different tinctures of known strength in a variety of cases, cardiac and non-cardiac, found that the average total dose of 0.148 cat units per pound of body weight was necessary for total digitalization. This corresponds to 0.15 cc. of a good tincture. When oedema was present, the weight was taken after its disappearance, and in fat patients allowance was made for the excess adipose tissue. The sex, age, or cardiac condition did not materially influence the dosage. In over one-half the cases the total dosage was within fifteen per cent of average. Robinson, using a tincture standardized by the cat method, wrote as follows: "The clinical results obtained in giving large single doses of the drug to about one hundred patients have been convincing of the correctness of Eggleston's work. . . . The doses ranged from fifteen to twenty-five cc. of the tincture." White and Morris also obtained similar results, although their single doses were not so large as either of the above. Turnbull, using tinctures of unknown cat activity, gave twenty-four cc. as the average amount necessary to produce full effect. Pardee,

using a tincture twenty-five per cent weaker than the average, found 0.2 cc. per pound necessary for digitalization in six days. If this dose is corrected for the difference in strength of the tinctures and the difference in time elapsing for total dosage, it will closely correspond to the others. The total therapeutic dose does not closely approach the minimum lethal dose. Several of Eggleston's cases received fifty per cent more than the total dosage after the appearance of signs of full digitalis effect without dangerous toxic symptoms.

The rapidity with which full digitalis action is produced depends on the time in which the total dose is given. One great limitation in the use of digitalis, according to MacKenzie and Cushny, was the slowness with which digitalis action was elicited, rarely seeing any distinct changes before the fourth day. However, they used doses of fifteen to twenty minims three times a day. Robinson, using initial doses of fifteen to twenty-five cc. of the tincture, obtained the first results in from two to five hours and the maximum effect within twenty-four hours. Eggleston writes that it is usually possible to obtain marked therapeutic action in six hours and the maximum in twelve to sixteen hours from the time of administration of the initial dose of eight to fifteen cc. By the use of the large single doses of the tincture, many times, the use of *strophanthin* or some digitalis preparation intravenously can be avoided.

The best therapeutic effect from digitalis often follows the gastro-intestinal symptoms—that is, it occurs when there is a more or less complete saturation of the body with digitalis. This state is produced when the full calculated amount of the drug is given, but, since this drug is gradually being destroyed in, or eliminated from the body, the effects last only on an average of ten days. Therefore, to keep the body saturated, it is necessary to begin the doses again a few days after the desired effect has first been produced. Pardee has determined that the rate of disappearance of digitalis from the body is independent of the amount of digitalis in the body, the size of the dose, or the rapidity of administration, nor does the age, sex, weight, or cardiac condition influence it. He

has estimated that an average of eighteen minims (twenty-two minims of a 125 cat unit tincture) of standard tincture leaves the body in a day. He suggests that in order to prolong full digitalis effect in cases in which it is desirable ten minims twice a day is sufficient.

The application of the "Eggleston Method of Digitalization" with only a slight modification of the original is as follows:

The weight of the patient is determined with allowance for oedema and fat; the number of pounds is multiplied by 0.15 cc. to estimate the total amount of the tincture necessary. A patient of one hundred and fifty pounds would require $22\frac{1}{4}$ cc. of a tincture of standard cat unit strength. Since this type of tincture is not usually to be obtained by the practitioner, in order to avoid over-dosage only three-fourths of the total calculated amount should be given in the first three doses. The doses are given at six-hour intervals in order to determine their effect before repeating.

When rapid action is desired in a case that has previously received no digitalis, the following doses may be given at six-hour intervals:

First dose, one-third total calculated amount;

Second dose, one-fourth total calculated amount;

Third dose, one-fourth total calculated amount; then

One-tenth total calculated amount every six hours until physiological reaction has been produced.

In non-urgent cases that have received no digitalis:

First dose, one-fourth total calculated amount;

Second dose, one-fourth total calculated amount;

Third dose, one-eighth total calculated amount; then

One-tenth total calculated amount every six hours until digitalization had been accomplished.

In cases when the patient has received digitalis within ten days, except in the most urgent cases, not more than one-half the total calculated amount should be given in the first

three doses.

The observance of the six-hour interval between doses allows time for absorption and action on the heart, and, if the patient be examined before each dose, dangerous intoxication can be avoided. The appearance of one or more of the following criteria of adequate digitalization or minor toxic symptoms calls for temporary cessation of the drug.

1. Nausea and vomiting if not due to splanchnic congestion or some other evident cause.

2. Fall in ventricular rate to or below fifty beats per minute.

3. The appearance of frequent premature contractions, of coupled beats, of definite heart block, or of marked phasic arrhythmia.

In practice it is safe to give the first three doses without seeing the patient between doses, if the nurse be instructed to watch for nausea or vomiting or a pulse below sixty per minute before giving the third dose and to stop the drug if any of these signs appear. This method is not dangerous to the patient if the directions are followed in detail and all the safeguards are carefully observed.

The single dose of the total calculated amount of the tincture, as used successfully in a large series of cases by Robinson, is best suited for hospital work where the patient is under careful and constant observation. The indications for the use of the drug should be clear and only the best grade of standardized preparation should be used.

Where it is desirable to continue the digitalis, the drug should be started again about four days after digitalization in doses of ten minims of the tincture twice a day. This dose is not suitable to every case. During its administration, if the heart rate begins to increase or signs of heart failure appear, the dose should be increased a few minims, but if nausea or vomiting occurs, digitalis should be stopped for a few days and started again with a smaller dose. Patients soon learn how to regulate the dosage in their own cases and can continue the tincture over a long period with little or no discomfort.

The delay in, or absence of physiological reaction following the administration of small doses can be explained by the observations of Pardee. Digitalis disappears from the body

at a definite rate; the daily dosage must exceed the loss, and the greater the excess, the more rapidly a sufficient quantity is accumulated in the system to produce a definite reaction. The use of the so-called tonic doses of two to five drops (there are about thirty drops of the tincture to one cc.) of the tincture three times a day is as a rule little better than expectant treatment. On the other hand, the cumulative action of digitalis with its insidious toxic symptoms is little to be feared. It is usually not due to any rapid absorption or peculiar action of the drug, but to its accumulating daily in the system and to the doctor failing to discontinue the drug when warned by the early toxic symptoms.

Causes of failure to obtain good results from digitalis in properly selected cases in which other necessary therapeutic measures are not neglected are as follows:

1. The use of an inefficient preparation. This can be avoided by using a physiologically standardized tincture manufactured by a reputable drug company.

2. Improper dosage. Digitalis must be given until some definite physiological reaction appears. The amount of the tincture necessary for this is 0.15 cc. times the weight of the patient in pounds. This should be given within a few days to avoid loss of a part of the total due to disappearance of the drug from the body. For rapid action the total calculated amount may be given in a single dose or three-fourths the total dose divided in the first three doses with six-hour intervals.

3. Improper mode of administration. Oral administration is advised in all cases where the drug will be retained. Hypodermic or rectal use of the tincture should always be a second choice.

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ECTOPIC PREGNANCY—CASE RECORDS.*

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In presenting a few cases on this interesting subject to you today, I shall first briefly present the history of a series of ten cases that have occurred in the past three years at the Baird-Dulaney Hospital, Dyersburg, Tenn. By close study of the cases and discussion we may be able to stimulate closer attention to this dangerous condition with the hope that in the future earlier diagnosis may be made.

Case Record No. 1.—Mrs. M., Newbern, Tenn. Age 23. Married three years. No children. History of irregular menstruation with pain in right side of pelvis. Last menstrual period two months ago. Three days previous to entering hospital pain in right side severe. Nausea at times. Blood clots passed from uterus. Temperature normal, pulse 100. Following day temperature 100, pulse 110. Examination by attending physician disclosed fulness and bulging in cul-de-sac. Diagnosis made of incomplete uterine abortion with some infection. Operation advised and patient was brought to hospital, where examination showed an increase of pulse and temperature, bulging in cul-de-sac and symptoms of internal hemorrhage. Ruptured ectopic pregnancy diagnosed. The trip to hospital had increased the hemorrhage, and an immediate operation was performed with the following pathology present:

Right ruptured tubal pregnancy with a great deal of free blood and old clots present.

Rupture had occurred several days before, but bleeding had not become dangerous until last twenty-four hours. Right tubal mass removed, but hemorrhage from adhesions was hard to control and gauze packing and drainage was inserted. Patient was very low for twenty-four hours, but gradually improved under treatment and made a slow but uneventful recovery, leaving the hospital at the end of three weeks. During the following year had extreme discomfort at times in pelvis, but at the end of second year had lost all pain in pelvis and had regained full health. No pregnancy had occurred in this case in three years following operation, although left tube and ovary remained and nothing was done to prevent pregnancy. This is a typical text-book case and shows one or two points of interest. Pelvic inflammations as a predisposing cause, and the advisability of early operation at the first sign of rupture and previous to the time that the hemorrhage became dangerous.

Case Record No. 2.—Mrs. D., Dyersburg, Tenn. Age 29. Married eleven years. Two children, ten and nine years old. Deliveries were by forceps with lacerations, and a continuous period of discomfort following. Menses regular but painful. Case referred by attending physician for pelvic operation. Examination showed uterus fixed, tubes and ovaries enlarged, and mass size of fist back and to the right of uterus. Diagnosis of salpingitis made and patient entered hospital for operation next day. The nurse reported the next morning that during the night patient had suffered extreme pain in pelvis and showed symptoms of shock. Re-examination showed pelvic distention back of uterus. At operation same morning large amount of fresh blood found in abdomen and right ruptured tubal pregnancy still bleeding profusely. The shock from hemorrhage was so great that no operative procedure was undertaken except the removal of tube and drainage, although the condition of uterus tubes and ovaries showed extensive involvement from chronic infection. Patient made recovery and has had moderate health since then, with symptoms showing that chronic infective condition in pelvis has not entirely cleared up. The typical missing of menstrual period did not occur in this case,

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and the infective processes in pelvis made it one where the diagnosis of tubal pregnancy was hard to make previous to operation. Rupture in this case was probably caused by manipulation of the parts in examination and preparation for operation. But as long as she was doomed to have a rupture the hospital was a very appropriate place for the same to occur. However, in the following case, rupture also occurred in hospital, but the termination of the case was not so fortunate.

Case Record No. 3.—This is the only case among the series in which death occurred, and the only one in which an operation was not performed. A post mortem examination was declined, so we have the element of possible mistaken diagnosis entering into this record. Mrs. M., Elbridge, Tenn. Age 35. Married fourteen years. Three children. Three miscarriages. Age youngest child 10 years. All childhood diseases. Typhoid fever twelve years ago. Menses regular but very painful. For past month has had slight menstrual flow with periodic attacks of pain in pelvis, more on right side. Family physician brought patient to hospital for diagnosis and treatment for pelvic trouble. Examination at hospital disclosed very painful pelvic organs. Enlarged and on right side mass was detected. No symptoms of internal hemorrhage present. Pulse 110, temperature 100. Patient gave history of several attacks of severe pain in right side extending over a period of two or three months. Tentative diagnosis of ectopic pregnancy made, and patient was advised to have operation after rest in bed and preliminary treatment in hospital. During the second night's stay in hospital, nurses reported patient suffering from acute pain in side of pelvis with symptoms of shock. Immediate examination of patient showed her suffering intensely, and extreme symptoms of collapse present. The patient realized her condition, and readily consented to an immediate operation, but before she could be taken to operating room she died from collapse. Death occurred in one hour's time from the initial appearance of pain in side. This case forcibly illustrates the necessity of early diagnosis and operation in these cases. Relatives refused a post mortem examination, but the symptoms were typical of death due to hemorrhage from

a ruptured tubal pregnancy, and I so stated as the cause of death.

Case Record No. 4.—Mrs. S. Age 34. Dyersburg, Tenn. Married ten years. Two children. One miscarriage. Usual diseases of childhood. One month previous to entering hospital had an attack of appendicitis. Was in bed ten days. Since then pain and tenderness over appendix and pelvic organs. Examinations show uterus retroverted. Pelvic organs tender. Cervical and perineal lacerations. Appendix sore. Vaginal examination did not disclose any special tumefaction in pelvis. Menstrual period regular. Operation disclosed sub-acute appendicitis. Right cystic ovary and left tubal pregnancy. This case illustrates the difficulty in always making the pre-operative diagnosis of tubal pregnancy. Left tube and sac removed and patient made an early recovery.

Case Record No. 5.—Mrs. T., Gates, Tenn. Age 34. Married. Has two children. Nothing unusual in history until four months previous to entering hospital. For past four months menses have been irregular and painful. Six weeks previous to entering hospital had attack severe pains in right pelvic region. Nausea, vomiting, some fever, which attack gradually subsided. Attacks of pain in right lower quadrant of abdomen accompanied by nausea, and irregular menstrual flow has occurred since then. I was called in consultation on case and diagnosed incomplete tubal abortion, and advised immediate operation, which was consented to. The following day patient was removed to hospital, and operation disclosed a bleeding tube on right side with some old clots in abdomen. Post-operative diagnosis, incomplete tubal abortion. The hemorrhage symptoms in this case had never become dangerous, but with the pathology present it is easy to see the menace to life which might occur at any time from extreme bleeding. This patient made an early recovery following operation.

Case Record No. 6.—Mrs. S. Farmer's wife. Family history negative. Mother of three children. Youngest 2 years old. Came to hospital complaining of chronic pelvic tenderness and pain for six or eight months, gradually growing worse. Several sharp pains in left ovarian region during last three weeks. Back-

ache. Sallow, pallid complexion. Lucor-rhea. Last two menstrual periods missing. During two weeks previous to entering hospital had to remain in bed part of time. On entering hospital temperature 100, pulse 110. Sallow, but not extremely white, and no apparent shock. Examination showed considerable tenderness over lower abdomen, and extremely so over left ovarian region. Some cervical and perineal lacerations present, and small mass felt in left tubal region extremely tender. Tubal and ovarian enlargement diagnosed with probable infection. Abdomen opened next morning, finding some small blood clots, rather solid and apparently having been present several days, a pocket adjacent to tube contained small amount of decomposing blood. Infection of moderate degree present. Small amount of bright red fresh blood oozing from the margin of a small rupture in the tube through which was protruding some foetal membrane and clots. This was an early rupture with very chronic symptoms and no great amount of hemorrhage, due to the fact that the foetal membranes were not completely detached and no vessel of importance ruptured. While the tube was ruptured, no acute hemorrhage, distinct shock or rapid pulse was present. Removal of the ovary, which was partially cystic, the tube and surrounding exudates gave relief and an uninterrupted recovery followed.

Case Record No. 7.—Mrs. H. Age 38. Entered hospital March 15, 1917. Giving history of having poor health for several months. Family history negative. Menstruation during last few months irregular and too frequent. Pelvic distress and soreness present. Day before entering had sudden sharp pain in left lower abdomen, followed by extreme pallor and exhaustion. Examination showed pelvic tenderness, dullness over lower abdomen. Pulse 135. Extreme pallor, vomiting and thirst. Vaginal examination showed bulging of cul-de-sac. Probable ruptured ectopic diagnosed and abdomen opened at once. Peritoneum before opening showed large amount of dark fluid bulging lower abdomen, cavity filled with serum, fresh blood and a few blood clots, which were quickly emptied and tube grasped below a large rupture which was in

state of active bleeding. Tube and emptied contents were removed and the usual methods to combat loss of blood were quickly applied, and patient made a slow but uneventful recovery.

Case Record No. 8.—Mrs. B., Lane Ferry, Tenn. Age 25. Married four years. One child two and half years old. One miscarriage, one year ago. Menstrual period three months ago delayed ten days. Next period scanty and following period profuse, lasting several days. Two days previous to examination severe pain in right side, followed by signs of collapse. Saw patient at her home in consultation with family physician, who had diagnosed incomplete uterine abortion. Patient was showing signs of severe internal hemorrhage, and examination showed cul-de-sac full of soft mass. She was removed sixteen miles to hospital, and immediate operation disclosed profuse bleeding from right tubal pregnancy. Old clots in abdomen. The shock from hemorrhage was so great in this case that patient narrowly missed dying, but gradually recovered under strong stimulation, and after a slow convalescence, finally recovered. However, two years later this patient re-entered hospital with acute obstruction of the bowels from an adhesion at the sight of the old trouble. Pathology present at this later date was such that she immediately died. Death could indirectly be traced to old tubal pregnancy.

Case Record No. 9.—Mrs. G. Age 34. Maury City, Tenn. Married. Four children. No unusual family or personal history. Past few years has had pelvic distress and pain. Menses irregular past years. Was brought to hospital by attending physician, who had diagnosed peritonitis from some trouble in the pelvis or appendix. Examination showed lower abdomen rigid and tender. Temperature 101. Pulse 120. Vaginal examination shows cul-de-sac full of soft mass. General signs of internal hemorrhage. Operation disclosed large amount of fresh blood and a number of old blood clots. Hemorrhage caused by ruptured right tubal pregnancy. Patient was extremely shocked and, owing to presence of infection, drainage was used. Patient made a slow recovery, but eventually overcame all effects of hemorrhage and infection.

Case Record No. 10.—Mrs. M. Age 22. Married. Mother of two children, 4 and 2 years of age. Usual childhood diseases. Menses regular until December, 1919. Patient was visiting mother, sixteen miles in country, when she was taken with severe cramping in right side. Some relief afforded by appearance of menstrual flow, which was profuse. Patient suffered repeated attacks of pain in side during the following two weeks, accompanied by nausea and extreme weakness. Physician was called, who made an indefinite diagnosis of pelvic trouble, and advised patient to get back to town as soon as possible. Owing to the extreme bad roads and weather, patient was unable to get the attending physician to return. But upon the appearance of a tumor in right side and continuous suffering, patient made her own diagnosis to the extent that she desired and needed surgical attention. The roads were extremely bad, but husband and father of patient rigged up spring wagon and a team of mules, and in a few hours time succeeded in getting patient to hospital, where examination showed rapidly enlarging tumor in right lower abdomen, accompanied by signs of dangerous internal hemorrhage. Temperature 100. Pulse 140. We immediately operated and found a great deal of fresh blood in abdomen and a large amount of old clots, due to repeated attacks of hemorrhage from a right incomplete tubal abortion. The placenta had enlarged to the extent where it had considerable peritoneal attachment, and packing with gauze was required to stop hemorrhage following removal. This patient narrowly averted death, due to a combination of circumstances. Incomplete diagnosis by attending physician and extremely bad roads to travel in reaching hospital after symptoms became so grave that family recognized a dangerous condition. Happily she survived, and at the present time has sufficiently recovered to be able to attend to her usual duties. However she still shows effects of extreme amount of blood lost.

In looking over the histories of these cases, I find that at the time of operation seventy per cent were in an active state of internal hemorrhage, a condition of great gravity and danger to the patient's life, and one in which only prompt surgical intervention offers any

relief. In nearly all these cases the previous menstrual periods have been irregular, but in some of the cases close questioning failed to disclose a distinct period missed, and in making a diagnosis of this condition, we cannot rely on always getting a definite history of delayed or absence of menstrual period.

Nearly all the cases gave history of pelvic infections or disturbances of more or less severe character. This is in line with the recognized etiology of these cases.

Two cases ruptured after entering hospital, or rather had a recurrence of previous partial rupture. One of these cases resulted fatally, and the only one among the series that did. But the internal hemorrhage was so severe in this case that it was impossible to operate before death, although preparations were hurriedly made to operate. Tubal abortion, complete or incomplete, or ruptured tube usually occurs from some undue pressure upon parts or exertion of the patient. This occurs when tube has been stretched to limit of endurance, or manipulation of the parts by treatment or examination may cause hemorrhage.

These cases were all of the tubal variety, with possibly the exception of one which might be termed the tubal ovarian variety. Ovarian pregnancy may occur according to some writers, but is very rare. No case of this kind has come under my personal observation. Another striking point in connection with these cases is that in no case was the diagnosis made previous to the time I saw the case. In thirty per cent of cases diagnosis of incomplete uterine abortion had been made. I believe this is the most common error made. This is due to the fact that the uterine flow, irregular in character, deceives the examiner. The history is not taken thoroughly enough and the presence of cramping pain in side is not differentiated from the cramping of uterus. The patient's statement that a mass passed from the uterus and flow has been irregular since is taken sometimes by the examining physician to mean that an incomplete uterine abortion has occurred when in fact the mass may be only a cast of the uterine cavity or clots which sometimes occurs in these cases but is not constant in all cases. Sixty per cent of the cases were, however, diagnosed correctly previous to operation and

the remainder were diagnosed as a surgical condition present justifying and demanding operation.

In looking up late reports and papers on this condition I find that in one hundred and eighty-six cases occurring in Woman's Hospital, New York, sixty-three per cent were correctly diagnosed previous to operation. In one of our cases the peritonitis was so marked that it was difficult to differentiate the case from appendicitis or ruptured pus tube.

In another case the patient had an attack of appendicitis six weeks previously, and while extreme tenderness in pelvis was present on examination, a distinct tumefaction was not present. More attention should be given to these early unruptured cases. The extreme lancinating pain of rupture should not always be expected—an ectopic gestation should be kept in mind when, in the child-bearing period of a woman's life, the normal menses are missed, followed by backache, cramps in side of pelvis, and especially a spotting from reappearance of menses continuing over an undue length of time.

Too much credence cannot be placed upon the patient's statement that the menstrual periods appeared at regular intervals, as sometimes close questioning will reveal the fact that they are not certain as to exact date, and that some irregularity existed. Sometimes we delay in diagnosis awaiting the classical and unmistakable sign of internal rupture, and patient has developed air-hunger, extreme pallor and dangerous internal hemorrhage symptoms. The majority of my cases had reached this point previous to time of operation. Only one was operated on previous to time when internal hemorrhage had taken place, and in sixty per cent the hemorrhage was dangerous. In a big per cent of the cases the early cramping sensation in side due to slight leakage had not been recognized as symptoms due to bleeding. Necessarily the severity of symptoms depend upon the amount of blood lost. Too much stress cannot be laid upon this point. The fact that patient recovers from these attacks of pain, accompanied by symptoms of shock, does not mean that the patient's life is not in imminent danger. This is forcibly illustrated by

the only death occurring in the series, and the only one not operated on.

A word in regard to the blood picture. This showed leucocytosis present in seventy per cent of the cases, ten to twenty thousand. The blood count was not made in the remainder, due to the fact that the patient was fast approaching a fatal termination and was taken directly to operating rooms. During the first few hours the leukocytes diminish in equal proportion to the red cells, but speedily a leukocytosis appears.

In conclusion, while many cases of extra-uterine pregnancy go to full term, the records show that in nearly all cases the foetus is either dead or malformed to such an extent that it quickly dies following delivery, and is a serious menace to life of the mother during the period of foetal life. Consequently any case diagnosed during the early gestative period should be considered an early operative case. Any incomplete uterine abortion where the attendant has not actually seen the aborted products should be examined with care; especially so should the cramps complained of be in the side of the pelvis, and not over uterus. Any atypical or irregular menstrual history is more typical of ectopic than amenorrhea. Is it too much to ask that in pelvic cases the histories should be more carefully taken? More attention should be paid to irregular attacks of pain in tubal region, especially accompanied by irregular menstrual history is more typical of ectopic ing down cramps, or backache. It is not because we don't know that more of these are not early diagnosed, but because we don't take time to examine carefully.

After diagnosis early surgical attention is demanded in all cases.

DISCUSSION.

Dr. Jere L. Crook, Jackson: I was greatly interested in this series of cases. One of them reminded me of a recent case where I was called by a very competent physician to see a patient fourteen miles in the country, whom he thought was suffering with a ruptured appendix. She had been taken suddenly three days previously with pain and tenderness in the right iliac region, followed by nausea, vomiting and fever. She apparently got better until the morning when I was called. She was taken suddenly with a recurrence of the

pain and tenderness in the right side, and at the time of my arrival her pulse was one hundred and thirty and her temperature subnormal. The abdomen was distended and extremely tender and the case was most urgent. We brought her to the sanatorium on a mattress in an automobile, and operated soon after arriving. On opening the abdomen a large amount of blood clots and a tumor the size of a child's head were encountered. Examination revealed a ruptured tubal pregnancy, and the tube was clamped near the uterus which checked the hemorrhage. The tube and its contents were removed, and also the tumor, which proved to be an infected ovarian cyst, and then an inflamed, adherent appendix was removed. Two hours after the operation it was necessary to give an intravenous transfusion because of the shock from loss of blood. After this the patient made a slow recovery.

Dr. William T. Black, Memphis: In making a diagnosis of tubal pregnancy before rupture, a careful history taking is of more service than anything else. Bimanual examination will, of course, detect the soft cervix and vaginal discoloration, if present, along with a slight enlargement of the uterus, and a soft fluctuating mass to one side of the uterus, but with these physical findings there should be a carefully recorded history to determine the nature of the trouble. If you are called within a short time after rupture takes place, it is not hard to make a diagnosis, but where the patient is sent to you twenty-four hours or longer after rupture has taken place, it becomes more difficult, especially if the rupture has taken place within the folds of the broad ligament. A blood count showing a leukocytosis with subnormal temperature, fast, feeble pulse with a marked decrease in hemoglobin per cent, is of great assistance. If the patient comes a few days later, with possibly a rise in temperature and leucocytosis, and a pulse with fairly good volume, it may be difficult to decide in a great many cases whether you have a pelvic abscess or an infected tubal rupture. In the later cases, as well as in all cases of ruptured tubal pregnancy, the hemoglobin per cent is probably the best indication as to the nature of the trouble, of course, always depending to a great extent upon the history and physical findings.

Dr. R. L. Sanders, Memphis: I do not wish to add much to the discussion, but noticed throughout the paper that no reference was made to blood transfusion, and I rise for that particular reason. Whenever we have a loss of blood, regardless of the cause and source, transfusion is one of the greatest aids we have at the present time in contributing towards the patient's recovery. It is quite a common procedure at the present time, and is such a simple matter that it is easy to bring within the reach of all. It is certainly the easiest thing that we can do to

supply the loss of blood. In case of a ruptured tubal pregnancy with great loss of blood I am quite sure it will be of great aid in your patient's convalescence. I just thought I would like to call your attention to the expediency of this procedure in a great deal more cases than we have been doing at the present time.

Dr. L. E. Burch, of Nashville: I think Dr. Black is quite correct as to the value of the hemoglobin percentage in suspected cases of ectopic gestation. A low hemoglobin with a low blood pressure, associated with the clinical symptoms and physical signs, should assist one in making a fairly accurate diagnosis.

Dr. Sanders has emphasized the value of blood transfusion. It is a form of treatment that may frequently bring those that are almost dead back to life. I want to suggest in certain cases of extra uterine pregnancy auto transfusion. It is only applicable to those cases where clot formation has not taken place and the abdomen is full of fresh red blood. This blood should be removed from the abdomen, mixed with the citrate solution and then reinjected in the patient. I suggest this method of auto transfusion in cases of splenectomy for Bantis disease. If the spleen is removed, simply express the blood from the organ and mix with the citrate and then reinject.

Dr. E. H. Baird (closing): I thank all of the gentlemen for their discussion.

In regard to blood transfusion, as suggested by Dr. Sanders, I will say that it is a valuable aid in these cases, in fact, in any case where there has been a great loss of blood.

Regarding Dr. Burch's suggestion of auto-transfusion, I am of the opinion that it could not be used in these cases, because nearly all the blood lost was in clots, and that mixed with serum from the abdominal cavity, and in the majority of the cases infected as well, would not be suitable for replacing in the body, at least without thorough sterilization. I thank you all again for your liberal discussion.

DISORDERS OF SEXUAL FUNCTION IN MALE.*

By P. G. Morrissey, M. D.,
Nashville.

The loss of sexual power in the male is a condition of great importance in the diagnosis of certain diseases and is also one met with considerable frequency. Impotence, itself, is

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not a disease; it is a symptom, the cause of which may be functional or organic.

The functional type implies the loss or impairment of the power of erection, due to some influence such as fear, superstition, perversion or debility of the nerve centers from exhaustion following excesses, or the effects of some wasting disease. The clinical picture of this type presents many diversities. They are perhaps the more interesting because so many of them originate from that type of individual who is, more or less, always susceptible to suggestion or imagination. On the other hand, fear is usually the easiest cause to understand, especially the fear of contracting some venereal infection or the fear of punishment for the performance of such an act. Under circumstances where such apprehension need not be considered—this class of patients are perfectly potent and should not be considered as a true pathological entity.

The type due to exhaustion from sexual excesses, or to masturbation, or from some debilitating disease, may be considered as an exhaustive neurosis. The organic type due to some structural change in the penis or more remotely the nervous system, or the organs which inhibit erection, is the class of patients due the greatest consideration.

In the psychic type we make the diagnosis, not from any one point, but from a complete history and examination. These patients are usually young adults between twenty and thirty years of age. They give a history of normal sexual abilities, up to a certain time, and since that time their powers have been deficient. Their disability dates from some specific occurrence, at which time they fail to have complete satisfactory intercourse; this fact startles them and starts them to thinking about their sexual ability. At the next attempt they are fearful of failure, and failure as a rule occurs, which causes more perturbation and as a result any subsequent attempt at intercourse brings about a repeated failure. This circle keeps up and soon they present a well-marked picture of psychic impotence. Physical examination shows this class of patients organically sound, but they are of the usual nervous temperament.

In the organic type there is a definite organic lesion somewhere in the nervous system or in the spinal cord, such as tumor of the cord, tabes dorsalis or nerve degeneration. According to Church 58 per cent of tabetics have a diminished or complete loss of sexual power.

Another type of cases may be grouped as the internal secretion type. These are men usually from thirty-five to sixty years of age, who have been active in business and social life. They may or they may not have had some venereal disease, but if they have it is as a rule of no consequence in relation to their present condition. They simply come for relief from a gradual failing of their sexual power. The history shows their failure has been gradual and that they have indulged excessively in sexual intercourse, and now, at about forty, they find intercourse is possible but seldom, if at all. It is this class that as a rule have some deficient action of one or more of the glands or internal secretion.

The next and last of this class of cases is the testicular—that type where there is a deficiency in the internal secretion or a disturbance of Leydig's cells. By far the greater number of these cases originate, I believe, from some pathology in the genito-urinary tract. This group may be classified as an organic type, inasmuch as organic changes have taken place, either in the prostatic urethra, or in the seminal vesicles, or the prostate gland.

The other conditions that will produce pathologic changes in the prostatic urethra are, first of all, gonorrheal urethritis of long standing, and especially in the neglected or ill-treated cases. It is this class of patients that, as a rule, have severe changes in the posterior urethra. Before taking up this class of cases I shall briefly describe the anatomical relations of the posterior urethra and its adjoining organs. First, the posterior urethra is that part of the urethral tract that lies in between the anterior layer of the triangular ligament and the bladder. It is about two inches in length and includes both the membranous and prostatic portion. The prostatic portion is its widest and most dilatable; it is somewhat spindle-shaped, being wider in the center and at either extremity. It extends from the bladder to the membranous urethra and runs vertically

through the prostate gland. Upon the posterior wall of the posterior urethra is situated the very important structure, the *veru montanum*. This is about 12 mm. in length and about 3 mm. in height, though this measurement may vary greatly in different individuals. The old theory is that the function of this organ was to close the pathway toward the bladder during ejaculation, so that the semen shall be prevented from going into the bladder. The most modern, and, I believe the accepted theory is that its function is to afford a crest upon which the ejaculatory ducts may open. The prostatic ducts open upon the floor of the urethra and converge toward the *veru*. Therefore this arrangement brings about a complete intermingling of the thick gelatinous semen and the thin prostatic fluid from the ducts, thus causing a homogeneous fluid which enhances and preserves the vitality of the spermatazoa.

Thus then, brief as it is, the prostatic portion of the urethra, although only a little over an inch in length, is one of the most interesting and important parts of the male anatomy, considered from the point of view of the urologist. In this small portion of the male anatomy are found structures, the disease or infection of which may cause more annoyance, more misery, and more serious consequences than any other portion of equal size with a possible exception of structures of the brain.

It is not within the province of this paper to discuss the consequences of gonorrheal infection of this portion of the urethra, but its sexual importance, which is not so well known at the present time. It may be hard to realize, for one not experienced in posterior urethroscopy, especially in the urethrosopic picture of the so-called sexual neurasthenia. What tremendous symptomatic effects may result from apparently slight and insignificant pathologic changes!

Those who may expect to find gross pathologic lesions in the posterior urethra in such markedly perverted conditions as impotence and the like will often be doomed to great disappointment. After much experience they will find and realize that a slight congestion in the region of the *veru*, a congestion which is often overlooked or considered of no conse-

quence by the inexperienced, may be, and in fact very often is, the cause of the greatest symptomatic consequence. Yet, as a matter of fact, often the most gross pathologic lesions in this portion of the genital tract, which are sometimes discovered during a routine examination, may not cause any disturbance whatsoever, either psychic or otherwise.

I wish to say here that it has been my particular good fortune to have been associated in the Vanderbilt University clinic for the past two and a half years in the genito-urinary department, where I have examined the posterior urethra in every case of sexual disorder, and I find the vast majority of these patients have been infected one or more times with gonorrhea. I was at first surprised to find in so many of these cases active pathology in the posterior urethra, in the prostate and also in the seminal vesicles.

It is the *veru montanum* that plays the important part in the performance of sexual disturbances. This simple ridge of mucous membrane in the normal state, rich in supply of blood vessels and lymphatics, is the seat of congestion during erection. The engorgement with blood, at first producing an active hyperemia, which later becomes passive, may persist during the quiescent state of the urethra and penis. Granulations quickly form and before long instead of being an insignificant ridge of mucous membrane, it is transformed into a large, angry-looking mass of tissue varying in size from that of a pea to that of a small china marble, covered with granulations or fissures. Bleeding easily, it frequently produces a profuse hemorrhage which may be hard to control. There is also at first a hyper-irritability of the erection and ejaculatory centers in the spinal cord, so that at this stage ejaculation takes place at the very commencement of coitus, often before the penis has entered the vagina. Later there occurs a complete exhaustion of these centers so that they refuse to transmit impulses to the genitals and thus we get the clinical picture of complete impotence.

There are other sexual disorders which are in part dependent upon pathological conditions in the posterior urethra, but time will not permit me to go into them. It is very important

to remember in this connection that the posterior urethra is but one of the several organs which are affected in these conditions, and it is generally the disease of all of them together which causes the symptom complex and, as in the case of other portions of the anatomy, we cannot take one organ out to the exclusion of the others in citing the blame for the symptoms.

It is hard to realize, were we not confronted with the most convincing clinical proof, how a slight or severe congestion in the posterior urethra in combination with congestion in the adjacent sexual organs can call forth such a variety of disorders.

Treatment.

The treatment of this class of patients will frequently require the most unlimited amount of patience. The first point in attaining a cure is to obtain the absolute confidence of the patient, assure him that there is something the matter with him, but that he can be cured or at least improve his condition. In all probability he has been through the hands of a number of medical men before he has reached you. Above all, gain his confidence and make every effort to find the underlying pathological condition.

In the absence of any organic lesion, namely, the functional or psychic type, good hygiene, regular habits and strict sexual abstinence, both mental and physical, have been found of value in the treatment of this type, together with the administration of extracts from the glands of internal secretion. Persistence will in the end product good results.

In the urethral type the treatment, in brief, is to get rid of the hyperemia of the prostatic urethra, by silver nitrate instillations, and to reduce the prostatic congestion by massage. The results are truly gratifying and it is one of the most pleasant experiences of the physician to see a new psychic and physical being actually produced out of a pitiable, nervous wreck, and all of this is accomplished by merely getting the prostate and posterior urethra into a normal condition. As before said, it is hard for those without experience in this work to realize how a simple irritation and congestion in the posterior urethra and prostate can be the cause of such marked physical and psy-

chic symptoms, and how the relief of such congestion can have such happy results.

In conclusion, I wish to state that this paper is not a paper on disorders of sexual functions in general, but primarily a paper on impotence and pathology in the posterior urethra and its relationship to the various neuroses and sexual disturbances due to urethral disease. It is therefore out of its province to discuss the importance of the other sexual parts, the prostate and seminal vesicles, as well as the importance of the brain and spinal cord, upon which the etiology of such neurosis depends.

I believe that this little inch of human anatomy contains structures which if pathologically affected may be the cause of extreme misery and produce the most far-reaching results and consequences.

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CHRONIC ATONIC CONSTIPATION AND ITS TREATMENT WITH INTERNAL MASSAGE OF RECTUM AND SIGMOID.

By D. R. Pickens, M. D.,
Nashville.

Constipation is one of the most common conditions of the human race; in reality it seems that we are a constipated people. Constipation means either the voiding of insufficient amounts or the abnormally prolonged retention of fecal matter in the intestinal tract, and must not be confused with obstipation, a condition of sufficient quantity of fecal material and a normal functional activity, but in which some deformity, growth, flexion, constriction or foreign body in the intestinal tract offers a mechanical obstruction to the passage of the fecal matter. A careful examination is necessary to determine the diagnosis

of these conditions, as their treatment is entirely different.

A careful history should be taken of these cases, going especially into the habits and mode of living, followed by a general physical examination and examination of rectum and sigmoid. If deemed necessary or if we are unable to account for the symptoms by general examination, we should have x-ray plates and fluoroscopic examination of the gastro-intestinal tract. If a patient comes into our office complaining of cough, we examine his chest and at least observe him for a while. How is it with the constipated individual? We dismiss him as a rule in short order, with a prescription for some laxative or purgative medicine. He takes this for a while, when he reappears or goes to some other physician and obtains a different purgative, and so on until he begins taking different medicines of his own accord, either trying them over again or takes up the patent medicines—and the legitimate practitioner of medicine loses a good patient. If we would examine these patients, we would find more early tumors and in this way prevent cancers or get them early enough to be of some benefit. We would retain a large number of people who, becoming discouraged, take up Christian science, osteopathy, and various other "faiths." Always bear in mind that medicine alone never cured chronic constipation and never will.

Etiology.—People as a rule do not drink enough water. Enough fluids must be taken daily into the system to keep the intestinal contents in solution, as insufficient water will cause constipation because of the reabsorption of fluids from the intestinal tract, resulting in hard and dry stools. Those who drink great quantities of water with their meals do not masticate sufficiently and drown their stomach contents; undigested particles of food with large quantities of diluted gastric juice are emptied into the intestine; the weak acid reaction of this mixture does not cause the proper reaction with the alkaline intestinal contents; the proper amount of gas is not formed, and quantities of intensely irritating food particles are passed down into the small bowel. This causes loss of tone. It is a well known fact that carnivorous animals

are constipated, while herbivorous animals are not. Realizing this fact, it behooves us to see that a sufficient quantity of "roughage" or vegetable material is taken, which will leave undigested fibre in sufficient quantities to produce stimulation of the muscular fibres of the bowel—such as corn, cabbage, celery, carrots, beet tops, lettuce, spinach, watercress kale and other green vegetables and fruits. The diet should contain also sufficient quantity of mineral salts, especially sodium chloride. It should contain sweets, because of the gas development which they cause. There must be sufficient bulk to properly fill and distend the bowel, thereby producing the proper stimulation to contraction. For this purpose oatmeal, whole wheat bread and bran are valuable because of the cellulose contained in the husks. People who eat hurriedly and do not masticate their food have improper stools because of the incomplete stimulation to peristalsis.

The diet is very essential, but I believe the most common cause of constipation is neglect. The school-child receives the call of nature, the fecal mass is ready to be expelled, but in our modern schools the lesson is more important than the functions of nature. The child, not being allowed to relieve himself, resists and restrains nature's efforts and the desire passes away. The continuance of this practice, day after day, soon makes the child chronically constipated. While peristalsis is involuntary, in the majority of people the voluntary control over the sphincter is sufficient to withstand peristalsis. The strong expulsive efforts soon weaken when opposed by a tightly constricted sphincter, and the constipated habit is soon formed. False modesty also plays a part, for the society girl or the working girl does not like to be seen going to the toilet, especially if she has to pass a number of men in order to reach it. So the toilets in homes and other buildings should be placed in such inconspicuous places that a person may reach them without being subject to the gaze of others. The toilet seats should be of such a height as to force the user to assume a squatting posture. Public buildings do not contain a sufficient number of toilets, so the occupants are required to wait. The business man, the lawyer, even the physician,

all refuse to obey "nature's call," because they are too busy or the time not convenient, and because of these facts we have become a constipated nation. As a result our newspapers, magazines and signboards are filled with advertisements of cathartic syrups, pills and waters.

When the bowel has lost its tone, remedies to restore it must be employed. In the treatment of acute constipation cathartics have their proper place, but the victim of chronic constipation should no more be made a victim of the drug habit than the patient suffering from chronic appendicitis. We should strive to bring the bowel back to its normal tone by imitating nature's methods. However, before any treatment is begun we must first satisfy ourselves that we are dealing with constipation and not obstipation, and if in doubt make a radiographic examination. If this does not show mechanical obstructions, the case is in all probability one of functional origin and a true case of chronic atonic constipation, and the majority of such cases can be relieved by internal massage of the rectum and sigmoid.

I have mentioned diet (and it is very essential), but good teeth are just as important, and if the teeth are bad send the patient to the dentist and have them put in first-class repair. If he is unwilling to do this refuse to treat him, as one of the first essentials is good mastication.

Exercise is very important in the treatment of constipation, and must be taken systematically. Walking, tennis and outdoor sports are good, and I have found the setting-up exercises of the army, with a few modifications, to be of special advantage. The patient is instructed to drink two glasses of cold water on rising and then to take the exercises from fifteen to twenty minutes, eat breakfast and go to stool—emphasizing the regularity in which all instructions must be carried out.

Any local trouble, such as hemorrhoids bad enough to interfere with natural movements, should be corrected. Fissures, ulcers and other pathology of the anus should be corrected before any treatment is begun. If the sphincter is very tight it should be dilated. The atonic rectum and sigmoid should receive internal massage.

A great many drugless treatments of constipation have been offered to the profession, such as electric treatments, external massage, cannonballs, baths, etc., and satisfactory results have been obtained by them in some cases. However, the best results to date have been attained by direct stimulation of the atonic bowel by means of mechanical dilatation. Rubber bags introduced through the proctoscope into the sigmoid and inflated have been used by Turek and others with excellent results in some cases. Tamponing the rectum and sigmoid with cotton, wool or gauze has been used, and by its mechanical irritation has produced satisfactory evacuations in some cases.

Many other methods have been employed, but the most satisfactory method of treating atonic constipation is by internal massage of the rectum and sigmoid with Hirshman's pneumatic dilator. This is a very simple apparatus, and consists of a specially shaped rubber bag provided with a stem, which is slipped over the distal end of a Wales bougie (No 3 to 5); the bougie is channeled and contains an air vent in the handle which is closed by the finger tip while inflating the bag. Compressed air at a pressure of three to five pounds is allowed to enter the bag, and distention to any desired extent is produced. By means of an ordinary cut-off valve and pressure reducer the distention can be easily regulated. If compressed air cannot be obtained an ordinary atomizer bulb can be used. The technic of its use is as follows: Patient is placed in the Sims position. The bag is twisted around itself on the bougie as an umbrella is rolled on its handle, lubricated, and passed upward into the rectum, first anteriorly until the anal canal has been passed, then posteriorly following the backward curve of the sacrum, then into the sigmoid to any desired height. The Wales bougie is firm enough to carry the bag up into the sigmoid and yet does not create any discomfort or do any injury to the bowel. When the bag is in position, it is slowly inflated until the patient complains of slight cramp pain, or a desire to move the bowels, when the air is allowed to escape by removing the finger from the air vent in the bougie. After an interval of five or ten seconds it is again inflated to the point of tol-

erance. Treatment is continued for five to ten minutes, usually ten, and at the last inflation before removal the air is not allowed to escape, but is held at the point of tolerance and by a to-and-fro motion the apparatus is gently and slowly withdrawn. This method of withdrawal massages the bowel and gently dilates the sphincter muscles.

This treatment is repeated daily until the patient reports a normal movement, usually from five days to a week, and usually after the first or second treatment the patient will have a small unaided movement. All cathartics are strictly prohibited during the treatment. When movements approach normal treatments are given on alternate days. After six or eight treatments the interval is lengthened to two days, three days and then four days, when patient is asked to report in five or six days. If he reports satisfactory evacuations, he is allowed to go a week, and then if a similar report is made, he is discharged as cured, but told to return the first day he fails to have a normal movement.

Under no circumstances is the dilator given to the patient for self-treatment, as it is impossible for a patient to successfully introduce the instrument or produce sufficient dilatation on himself to achieve results. If the case is properly diagnosed and instructions carried out, the results from this method will be very satisfactory. The patient must co-operate in every way and must "keep his mind on his work." I usually give these patients Ext. nux vomica gr. $\frac{1}{4}$, Ext. belladonna gr. $\frac{1}{4}$, and Ext. physostigma gr. $\frac{1}{6}$, four times daily for its tonic effect. Occasionally, if the stools are very dry, liquid paraffine may be allowed for a few days until the treatment is well under way, and then withdrawn.

Hirschman reports a large number of cases treated by this method and claims cures in eighty-five per cent of the cases. I have treated quite a number of cases by the method and find it all that he recommends, and have relieved at least ninety per cent of the cases I have treated. The number of treatments will vary from four to six to twenty or more depending upon the individual and time the constipation has been present. If a case has been properly diagnosed and no pathology is

present to interfere with the treatment, surprisingly quick and permanent results can be attained.

A PLEA FOR BETTER CLINICAL DIAGNOSIS*

By A. L. Rule, M. D.,
Knoxville.

To make a correct diagnosis in many conditions is very difficult, in others comparatively easy. Many times we have to reach conclusions by exclusion, and other times by a collaboration of all symptoms grouped and classified.

We are in better position to make a correct diagnosis today than we have ever been before. We have at our command not only the state laboratory, but in every section of our country in easy reach we have our local laboratories in whom we can entirely rely when there are many conditions that confront us in which, without such reports, we are entirely helpless; hence the value of laboratories in making a correct diagnosis. Next to the microscopical laboratories comes the x-ray, which is at times even more valuable in a differential diagnosis. The correct interpretation of a skiagram may be at times exceedingly hard, but, knowing the normal tissue, it helps beyond measure in finding the abnormal. The valuable use of the microscope has been thoroughly demonstrated during the recent world war, when in many instances a diagnosis of spinal meningitis has been positively made in two hours' time.

I speak of these measures as valuable aids to a physical diagnosis. It was not the purpose of this paper to discuss laboratories and x-rays in diagnosis, and hence the title, "A Plea for Better Clinical Diagnosis." Not many years ago the x-ray and microscope were unheard-of entities, and so before the days of these the physician had to rely entirely upon his clinical findings. History

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

taking has to a great extent been relegated, but in it we have one of our most valuable assets in diagnosis. We should know as far as possible the family characteristics, because so often a disease is handed down as far as the third and fourth generations. We should know the age and cause of death of near relatives, because in that a valuable suggestion may come.

Now, I bring an indictment and a true bill against both the medical and surgical professions, and that is we are too careless and in many instances too hasty in making a diagnosis. Surgery has robbed the medical profession, for the time being, of many jewels, later to be returned without improvement, financially "broke," mentally despondent, physically disappointed, and in many instances worse than they were when they left you. What is the reason? Carelessness, faulty diagnosis, first on the physician's part and secondly on the part of the surgeon. I do not wish to discredit surgery, nor mislead you into the belief that it has no place in rebuilding fallen humanity. No, never, because some of the most brilliant results in the most grateful patients are those who at the sharp edge of the surgeon's knife and by his skill have been restored to health and vigor again. But too many men are trying to do surgery who are not competent, or who have not had sufficient training. A good surgeon is the man who knows as well when not to operate as when to operate. I believe the time should come when for a man to do surgery he must have training in a school of surgery with license showing such training for a given period.

The History of Medical Progress.

The practice of medicine is a gradual evolution from a past state in which that practice was based upon tradition. Through the ages there have been periods when the introduction of new ideas for a time directed medicine towards a clearer and more scientific course. But such phases have been temporary; and medicine has ever tended to slip back into the old groove of tradition. Even at the present day the most enlightened among us is hampered by these traditions.

Although, indeed, many notable advances had been made in many fields before the middle of the last century, it was only about that time, which was the period of the introduction of systematic study, first of physiology and then of pathology, that the study of medicine can be said to have achieved a definite and scientific direction. It must be apparent to you that no real advance could be made until the systematic study of these sciences gave us definite data regarding the physiological processes and their modification by disease.

With the opening of laboratories for the study of diseased organs and the founding of professorial chairs for the teaching of pathology, this branch received a great impetus and has carried our knowledge of disease a long way. The students of medicine by the bedside were not slow to take advantage of the knowledge which the pathologist gave; and thus the study of the lesions produced in the living were correlated with the diseased conditions found on the post mortem table. In this manner physical diagnosis was gradually laid on a sure foundation. The advance in this region has been great, and physicians have been alert in seizing on methods of examination which the advance of other sciences have brought to light, as, for example, the use of the microscope, the various electric methods, and the x-rays.

The recognition of the microbic origin of disease within recent years and the brilliant researches of the bacteriologist have caused a great advance in medicine, not only in the detection of disease, but in providing new conceptions of treatment.

This is a day of idealism. The merchant is ever planning his business for higher ideals, the banker is watching every turn to see where he can improve his institution. The farmer is even having the dirt analyzed to know what kind of grain is most suited for higher production. Surgery, like medicine, is a sacred trust, and the man who considers it any less is not worthy the title he carries.

Now, I would not have you think that we are infallible, because we are all fallible, and even after the most thorough investigation we may come to a wrong conclusion. Cabot, I believe, finds on post mortem that his diag-

noses are correct only in about 70 per cent of his cases. Granting that every physician knows the normal anatomy, after the family history has been thoroughly taken, and we have all data necessary, we should give our patients thorough physical examination, examining every organ in the body, that we may be able to give intelligent opinions. We should be on the lookout for tonsil and ear complications, especially in children. We should examine the chest both by percussion and auscultation, and after we have noted these conditions make a close observation of the abdominal cavity first by inspection, and then by gentle manipulations, and if a woman, a pelvic examination, especially if married and she has borne children. By these examinations, if properly carried out, we should be able to elicit any clinical findings that are of significance.

Clinical Research at the Present Day Deals With Disease at an Advanced Stage.

If we pause and look back at the advances made in the last hundred years we may feel justified in rejoicing that clinical medicine has made wonderful progress, but if we look a little more closely we cannot but be struck with the fact that "there remaineth yet very much land to be possessed." Speaking broadly, the result so far is that we know much of the diseases of which people die, and we know a great deal of the signs and symptoms of these diseases in the human body before they die. We can, by our unaided senses and by mechanical aids, detect disease processes when the disease has advanced so far as to have done actual damage to the organs and tissues. But you will observe that the recognition of a disease occurs for the most part when it has made such progress as to produce what we call a physical sign. Now, a physical sign in a great many cases implies a disease so advanced that destruction of tissue or permanent impairment of the organ has been produced. At the best, treatment may arrest disease, leaving an impaired organ; while frequently all we can do is to mitigate the sufferings caused by a progressive disease.

The chief efforts of the profession have been spent in the recognition of the more chronic diseases after they have killed the individual or when they have gone beyond the stage of cure. No doubt research into diseases in the later stages was necessary as forming the foundation on which further inquiries should be based, but it is now full time that we should look beyond these stages and see if we cannot get nearer to the goal which is our aim by the detection of disease in its earliest stage.

The Investigation of the Early Stages of Disease Has Not Yet Been Seriously Undertaken.

In order to obtain a fundamental conception which shall be our guide in medical research, it is necessary to keep clearly in our minds how disease invades the system and the kind of evidence which reveals its presence. When this conception is grasped it will be clearly understood why medical research, restricted to the lines pursued in the past and in the present, has failed to bring to light the knowledge essential to the recognition of disease in its earliest and most curable stage.

Health may be described as the harmonious working of all the organs of the body. The introduction of any agent interfering with the function of an organ at once destroys harmonious activity. If we are to recognize this agent we must appreciate the signs of its interference with this harmony. The first sign of all will be the consciousness of the individual that there is something amiss—in other words, the first sign of the invasion of the body by disease will be a subjective one. At the early stages it may not materially interfere with his functional capacity; but, by and by, with the persistence of some disagreeable sensation, he will be brought to seek medical advice. The advice may be sought at a period when no physical sign is present, so that, in the present state of medical knowledge, the nature of the complaint will most probably pass unrecognized.

This is no fancy picture, but represents the experience of those affected by most of the chronic diseases, whether of the lungs, the

heart and blood vessels, the digestive apparatus, or the kidneys. The diseases of these organs often begin insidiously, and we fail to recognize them until they have developed so far as to alter the organ or its functions, and produce some "physical sign." It is often assumed that diseases are now recognized at the earliest moment at which it is possible, humanly, to recognize them, and this idea has been strengthened by the knowledge that we now possess mechanical methods to supplement our senses. But it cannot be too strongly insisted upon that these mechanical methods only elicit evidence of damaged organs and that we must learn to recognize disease before such damage is done. Thus, the detection of consumption by the x-ray in what is called the "early stages" occurs in point of fact only after the tissues of the lung have been damaged, and long after the actual invasion of the body by the disease germs has taken place.

In examining the chest we should note first the rate of respiration, the character, whether deep or shallow, and on percussion the different variations of the percussion noted in the normal. For example, over the heart and liver we have a normal slightly dull note, while over the apex region we have a tympanic note. In the abdominal cavity the first observation should be made of the stomach, noting its location to ascertain if you have a ptosis or dilatation, a gastric ulcer, malignancy, pyloric obstruction, adhesions between liver, gall bladder, etc. Noting all these conditions, we should be able to come to a reasonable conclusion relative to a possible pathology in the stomach, remembering, of course, the subjective symptoms in every case. We cannot be too careful in making these observations, because in them rests a physician's diagnostic ability.

Now, I have not tried to give any definite outline that would be proper to follow, but I have tried to say to you that clinical diagnosis is not an easy task, and must not be considered as such, because it is measured by the depth of scientific medicine. If we would be among the foremost ranks in our profession, we must tune up our diagnostic ability to such an extent that the laity will

think of us as worthy of the trust reposed in us. I contend there is as much skill in the diagnosing of disease as there is in applying the remedy. In other words, the diagnostician is to the surgeon as the chauffeur is to the mechanic—that is, the chauffeur must tell the mechanic the trouble and he will fix it.

The Patient's Sensations Give the First Indication of the Invasion of the Body by Disease, But We Are Not Capable of Interpreting Them Aright.

Long before the physical signs became perceptible the evidence of disease was there. The patient's sensations give absolutely truthful evidence, but unfortunately, we are unable to interpret them, and too often lack knowledge as to how to get the patient to describe his sensations. There is nothing, perhaps, so striking in the difference between a young physician and an old one with experience—though the young man has just received an education of the best and most modern kind and has enjoyed all the advantages of laboratory and hospital training—as the ability to recognize and appreciate the patient's sensations. It is sometimes wonderful how physicians with experience can recognize the nature of a patient's complaint from the disjointed remarks of the patient himself. This knowledge the young physician has not acquired; the old physician has got the knowledge through past experience, and the misfortune is that the knowledge is to a great extent personal and cannot be conveyed by its possessor to others.

In a great measure this deficiency is due to the fact that that precise training has never been inculcated which would enable the physician to extract from the patient a description of his sensations in such an intelligible form that they could be appreciated. This, again, is due to the fact that the physician himself does not possess the knowledge which should enable him to interpret these sensations and correlate them with definite changes in the organism or with functional disturbances of an organ.

To remedy this it is necessary that the patient's sensations should be as carefully

studied as the details of a laboratory experiment. Now it is well known that a physiologist can read aright the results of an experiment only if he possesses some knowledge of the functions of the organ with which he is dealing, and that the success of his experimental work depends on his being able to interpret aright the changes he detects. The most successful experimenter will be he who has the greatest knowledge, for the less experienced will fail to detect many changes and consequently will not understand the results of his experiment. The same reasoning applies to the physician. Before he can interpret the patient's sensations he must have a knowledge of the functional disturbances that are capable of producing these sensations. We must learn to recognize that when we fail to detect a disease in the absence of physical signs this failure in reality proves only our own incompetence. The facts are there, but we are not sufficiently well educated to make use of the great source of information they constitute. As I have said, the sensations of the patient should be as carefully studied as the details of an experiment in a laboratory, and not only the sensations, but all the associated phenomena that may appear synchronously with them, or at a later stage, should be carefully noted and correlated. I know that physicians, generally, will protest that they have all along pursued this line of investigation and have exhausted it.

Why should I read a paper on a subject like this when every day in our profession brings new ideas into play? Why should I feel that the medical profession is not keeping pace with the current events in medical lines? The answer comes quickly from every bedside in Tennessee, pleading with our profession to equip ourselves with knowledge and to awaken out of slumber that has almost reached the stage of coma.

Then again there comes a sound as from the tomb of the sleeping dead, echoing back from every hilltop, saying, "Awake! Put on thy strength, oh, medical profession, that others may not follow the course I have had to pursue!"

You say: "Do you mean to say that numbers of people are filling premature graves as a result of faulty and careless diagnosis?" I say to you, Yes! emphatically. Not three days ago I was called in consultation to see a young girl past fourteen years of age that gave a history of about ten days of illness with three days of continuous vomiting, with every sign to even an ordinarily trained eye of a gangrenous appendix. This case has been diagnosed by a physician as "green apple colic." I advised that an operation was imperative to the life of the child. A large gangrenous appendix was removed, and gave the child the only thread of life on which to hold.

Now my plea is to master the situation if you can, and if you are not certain, call a consultant in whom you have confidence and give your patient the benefit of doubt. Then many mounds will be prevented and your patients will rise up and call you blessed.

DISCUSSION.

Dr. W. K. Sheddan, Columbia: Mr. President, I think the paper of Dr. Rule's is one of the most timely papers that has come before this body. Clinical diagnosis is a very important subject, and in making that we should not be confined to the laboratory findings, but should go farther. In addition to the laboratory records we should go into the history of the patient and use all of the aids that may be in our power, in the shape of the x-ray, etc., to enable us to get at the real cause of the condition which may be presented by the patient. There are a great many things that should be observed in making a clinical diagnosis. One of the most important is a careful history of the patient. No doctor, I care not how skillful he may be, can make anything like a correct clinical diagnosis of a case without knowing the history, not only the family history, but the personal history of the patient. The case that you are called upon to diagnose may have been running over a period of months or even longer, and may involve both the pathological and the educational history of the patient. I have been surprised myself at things that have developed in endeavoring to make a correct clinical diagnosis of cases, by learning things in the previous history of the patient that have been great searchlights in aiding me to reach a correct conclusion. During my practice I have kept copies of records bearing on different cases that I have had, copies of records showing my findings and my observations, and I have found

that these records have been of great benefit. If you will keep records of that kind for fifteen or twenty years, as I have done, I think you can appreciate their value. I have been practicing medicine for forty-two years, and in a great many classes of cases I have taken the record of each case and my observations and my findings, and have kept a record of those cases and the course of my clinical observations, and the clinical aspects of each individual patient. I have found in that way that I have derived as much benefit, if not more, than I have from my laboratory observations.

There is nothing of more importance than the careful taking of the history of the case, the family history and the personal history of the immediate condition. In that way you will be able to explain certain things that you may observe about the patient, without which you would be unable to understand.

Now, you will see a patient come complaining of certain things. Maybe he has been one of those chronic growlers, and by inquiring into his previous history, into his family history, and his individual history, you will be able to learn a great many things that are very important features in the clinical side of the disease. Again, no man can understand a case clinically at all unless he is a physiologist. Pathology involves more or less abnormal physiology, and to appreciate, understand and comprehend anything about general symptoms connected with any disease you have got to have a good knowledge of physiological conditions, conditions that should exist normally. This I consider one of the most important matters in connection with clinical diagnosis. Make a careful inspection of your patient and his general condition. Look at him as you would look at a horse that you were going to buy. Submit him to a very careful inquiry and a minute inspection, not only as to his physical appearance, but as to the patient's mentality. The appearance of the patient and his general attitude are frequently more important in enabling you to reach a correct conclusion as to the patient's condition than any laboratory finding. Such men as Da Costa and Janeway and that class of men did not depend on the laboratory findings for their diagnoses. They were men well versed in physiology and with all clinical literature. The diagnoses made by Janeway it almost seemed to me at times were the result of intuition.

Dr. W. A. Bryan, Nashville: In our courts they have certain rules governing the consideration of evidence. One of the rules is that the witnesses as to certain things should be examined, and another rule is that the credibility of the witnesses should be taken into consideration. Now, the mistake that we sometimes make is that we rely too much on the laboratory, or too much on the

x-ray, or too much on this, that or the other. Another mistake I think we often make is that we are not certain about some of the facts in the examination of our witnesses. We do not check them up carefully enough. We should take a careful note of the central nervous system and be able to draw certain conclusions from that. For instance, the pathological tests may not be satisfactory; the laboratory tests may not be definite, and then we may examine our patient with the stethoscope and still not be satisfied, and then is when we should make a clinical analysis of our witnesses. By thus examining our patient we should be able to get much better results. Now, back behind the man that is doing the laboratory work, behind the man that is doing the x-ray work, are the observations that you may make, the examinations that may be made by you, your analyses of the conditions that are presented. No evidence, in my opinion, is conclusive without a test of the credibility of the witnesses. Your laboratory tests and your x-ray tests must be checked up. Neither of those men who make those tests know the patient and his condition as the examiner should know him. You are the man that is making the search, and you know that no law is infallible, and your examination should be made from every angle and from every standpoint. You should be able to tell from your examinations whether it is a surgical condition that presents itself or not, and be able to advise your patient accordingly. There are two reasons why the family physician has the advantage of the man who only sees the patient once or more. You are more familiar with the family history, or should be, and you know the patient more intimately than the other, and therefore should be more familiar with his individual history. You have all of those things upon which to base your conclusions, and if the patient when he comes to you is not in an acute condition and you are not satisfied with the conditions as they present themselves, then let your patient go back home and study the symptoms more thoroughly before you announce your conclusions.

Dr. W. F. McManus, Chattanooga: I have listened with interest to the reading and discussion of this paper and the various subjects that have been presented before this body, and I must say that I have never seen greater preparation on the part of those to whom duty has been assigned since I have been attending the meetings of this organization.

We are now living in a day of progress, where educational advantages and literary accomplishments are seemingly stamped on the wings of time. Yes, we are living in an age of human possibility, surrounded by educational advantages and literary opportunities. But notwithstanding our great advancement in scientific research,

there are many things in the scientific world that lie buried in obscurity. And it will require study and thought to reveal these hidden mysteries.

Too often have fatalities occurred owing to the physician or surgeon in charge failing to make a scientific diagnosis of the case. How is it possible for a doctor to know abnormal conditions when he is not conversant with normal conditions? In other words, how can he distinguish between health and different diseases when he has not scientifically studied the fundamental branches of medicine? There are men who are attempting to establish themselves as surgeons in the eyes of the world by cutting who have little scientific knowledge, who possess no mechanical art and less dexterity with the use of instruments. And their failures in operations have caused a lack of confidence on the part of the laity, and the medical profession at large must suffer for such incompetency. This criticism does not apply to the man who is competent and skilled, but only to the would-be surgeon who willingly performs operations, knowing at the same time he is not skilled. I am afraid some of these will find it difficult to explain to St. Peter at the gate their reason for inflicting so many unnecessary scars on the bodies of their best friends.

There is also a tendency on the part of our most scientific men to rely too greatly on some of our most improved methods of research in the diagnosis of their cases, and have overlooked judgment and common sense, and, as it seems, have swung to the other extreme. The conservative man is the man of the hour. He is the safest man and the one who must restore the lost confidence of the laity. In the diagnosis of all cases, medicinal and surgical, we should take advantage of the various improved methods, at the same time using all the skill and knowledge we have acquired, based on judgment and common sense.

Dr. A. L. Rule (closing): I want to thank the gentlemen for their free discussion of my paper, because it is only in this way that we can gain information. There are so many things to be taken into consideration in diagnosing disease that are not taken into consideration, that it has given rise to difficulties in the profession. First, I want to mention the facial expression of the patient himself. There are things about the facial expression that will many times give correct impression as to the difficulty. Then the temperature and the pulse should be considered very carefully. There are so many things that may be indicated by the pulse, in the character of the pulse, whether it is feeble, throbbing or a soft pulse. Now as to the laboratory work, gentlemen, we have almost reached the time when we depend too much on the laboratory. I could

not and I would not discourage anything that would help me in coming to a definite conclusion, but we depend too much on laboratory reports. We take the findings of the laboratory man as final too many times: Since my coming here I have had a wire in regard to one of my patients of whom I had made a thorough examination, I thought. We had come to a definite conclusion that he had an ulcer, but they have operated on him and found that his trouble was cancer. The x-ray did not show a shadow of a cancer—in fact, it showed an ulcer, but the operation showed that he had a cancer. So let us not depend too much on the laboratory or x-ray. The good surgeon is the man who knows best when not to operate as when to operate. Now, gentlemen, I believe with every fiber in my being that you surgeons do not take the time that you ought to take to work out these things. I hope to see the day, gentlemen, in scientific medicine when you will all be ready to wait, except in emergencies, and give your patient a thorough examination before you operate. Team work, gentlemen, is absolutely necessary for the physicians of this country. In this day of enlightened medicine do team work, and thus come to a definite conclusion. As stated in my paper, if you are not reasonably satisfied with your own diagnosis of your patient, then let us call in a consultant in whom you have confidence to help you work out these things. This not only helps you but it helps your clientele. Not until the medical profession rises above blind work will we be on a plane that is on a level with scientific ideas.

A PLEA FOR A MORE MODERN TREATMENT OF ACUTE GONORRHEA.

By G. Madison Roberts, M. D.,
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1. If we bear in mind the fact that the entire mucous surface of the seminal vesicles, ampullae and vas is almost equal to the mucous surface of the male urethra, we can readily see that any treatment limited to the urethra, such as hand injections and irrigations, is only half treatment, especially in those cases that are complicated by an infection of the mucous surfaces enumerated above; and according to Belfield, fifty per cent are complicated to more or less extent some time during the first week of an acute

gonorrhea. With these facts in mind, we can see why a prominent neurologist of Chattanooga states that a great number of his patients date the commencement of their illness from an attack of acute gonorrhea; and then considering that the hand injection, instillation and irrigations, with some form of an urinary antiseptic, is the recognized treatment of a gonorrheal urethritis, and has been for the last fifty years, with variations only in the agents used, we can understand why he asks the questions, "Has there been any improvement in the treatment of gonorrhea in the last twenty years?" and "What can be done for this class of patients?"

2. Acute gonorrheal infection is produced by the gonococcus, a microscopical, Gram negative diplococci. This organism is especially active when in contact with mucous membrane, and Fenger has shown that in thirty-eight hours after inoculation the gonococcus has just begun to effect an entrance between the epithelial cells. The inflammation extends until the gonococcus has penetrated deeply into the layers of the mucous membrane, which has become acutely congested, the epithelium undergoing mucous desquamation and exfoliating in patches.

3. MacCullum further states that the gonococcus penetrates the epithelial cells and even extends into the sub-epithelial tissue of the urethra. With these facts in mind it is readily seen that any attempt to kill out the infection by strong antiseptic injections is not only useless, but actually assists the disease in extending into the sub-epithelial tissue, unless we have a germicide that is capable of penetrating into the deep sub-epithelial tissue without impairment of the normal function of these cells. Young states that we now have such a germicide in "mercurochrome-220," of which we shall speak later.

4. When gonorrhea is contracted it usually finds a fertile field in the fossa navicularis, and from there extends into the glands of Tyson, two glands situated just behind the fossa navicularis, and from there spreads to the lacunae of Morgagni and glands of Littre, which are many in number situated throughout the pendulous portion of the urethra,

especially the roof. This extension of the inflammation is usually complete on the fifth to eighth day of the infection; especially is it so in improperly treated cases more than in those cases that receive no treatment at all, or at least no hand injections. It is at this stage of the infection that we note the most frequent complications.

5. In order to be able to cope with a complication, as it arrives, we must be able to recognize the beginning symptoms. In a typical case we note that the patient has been under treatment five to ten days; the first glass has been cloudy, with most of the pus passing in the first two or three ounces. But now it is noticed that not only all the first glass is cloudy, but the second glass becomes cloudy, a slight fever is present, 99 to 100 degrees, slight headache, pallor becomes noticeable, uneasiness in the perineal region, slight pain and fullness in the rectum, and frequency of urination, accompanied by some pain, is noticed. The patient feels that all is "not quite right," and expresses serious apprehension as to the ultimate outcome. You will notice in a few days after this (second or third day) a diminishing discharge, making it hard to convince the patient that he has a complication that needs close attention, and he will tend to skip visits. It has been customary to ascribe this chain of symptoms to an acute prostatitis, and treatment by injections and irrigations are checked or discontinued. If the spread of the infection should be limited to this stage, it has been the practice to wait until it subsides and then repeat injections for a varied length of time and to dismiss the patient after the discharge has become absent or only shows in the form of a glary drop in the morning, in which the gonococcus have been absent on examination of one or two smears. Yet, if the condition should continue and the ejaculatory duct become occluded, we wake up some bright morning to find a new case of epididymitis. In fact, we have had an acute seminal vesiculitis in addition to a possible acute prostatitis. In these cases we find that the first symptom that points to a beginning epididymitis is the pain over the spermatic cord passing through the inguinal canal. This pain

occurs five to ten hours before the epididymis becomes involved. It is to be remembered here that the vas is infected and the epididymis will surely become involved if the ejaculatory duct continues to be occluded. Guiteras ("Text-book on Urology") calls our attention to the fact that the exciting causes of acute gonorrheal epididymitis are too strong local treatment of the posterior urethra; the neglect of treatment; irritation due to sexual excitement; alcoholism; over-exercise, especially dancing, riding and bicycling; exposure to wet and cold and badly fitting trousers that irritate the testes." All of which is true, except the conclusion that the tight-fitting trousers irritate the testes. In place of irritating the testes, they irritate the perineum and the seminal vesicles, and will not only bring on a complication, but will cause the return of an apparently cured gonorrhea, justifying the often repeated assertion that the trouble is caused by a "strain." The epididymis becomes surrounded by a sero-sanguineous fluid or an acute hydrocele, which produces pressure on the testicle and causes that agonizing pain so prevalent in this complication of gonorrhea. If we treat the epididymitis by hot or cold applications, cauterization, lead and opium wash, or ointments, we have only relieved the pain and have done nothing to remove the infection from the vas and epididymis, while on the other hand if we do an epididymotomy and fail to remove the infection from the vas, ampullae and seminal vesicles, we have only half treated the complication, and recovery will not take place; but we may expect to relieve the most distressing symptoms and release our patients to become of the vast army of neurotic sufferers from the effects of a gonorrheal infection improperly treated. The surgeon who contents himself by performing an epididymotomy, without treatment of the infected vas, seminal vesicles and ampullae, should expect the same results that he would obtain by lancing an infected tonsil. The source of infection in neither case has been removed, and the ultimate result will be about the same.

Treatment.—The treatment of a gonorrheal infection of the genital-urinary tract is very

much like the treatment of an infection of the respiratory tract. That is, we must be governed by the location of the infection. The physician who treats gonorrhea by injections and a few balsamics by mouth and gives no thought as to what part of the tract is infected is usually the one who says, "Once gonorrhea, always gonorrhea." We must know physiology and anatomy in order to know pathology and pathological anatomy. Belfield has called our attention to the fact that "the doctrine that gonorrhea in the male is incurable is gaining ground among physicians and laymen alike." And, taking issue with them, he explains the difference between the words incurable and uncured. He admits that there are many cases that are uncured, but protests the conclusion that they are incurable. He further states that "to the physicians of the last generation gonorrhea was a 'urethritis' only; invasions of the extra-urethral structures were 'complications.' So long as pus issued from the meatus it was assumed to be produced in the urethra; and this innocent canal was tortured with caustics, dilators, knives and urethroscopes without avail. Quoting further from Belfield, we read that "today we know that the disease is usually urethrovesiculitis, the infection invading the vesicles and ampullae in from three to twenty days after the discharge appears; and that from these extra-urethral cavities pus may drain into the urethra and out of the meatus from two to twenty years in spite of any or all treatment of the urethra; for this merely mops up the floor, the urethra, without turning off the faucets, the vesicles."

Prophylaxis.—When the prophylactic treatment of an expected case of gonorrhea was first instigated in the army there was a great cry that went up from most of the welfare organizations. They stated that it gave false security to the men and encouraged illicit sexual intercourse; but after a fair trial it proved to be one of the greatest measures that had ever been taken to free the army from this dread disease, and as such has been continued, despite all the protest. It is another example where a little common sense has proven its worth when given a fair trial.

Yes, we should warn all men against the dangers associated with illicit sexual intercourse, but to depend on all taking our advice is the height of folly. Hence the instruction in the proper use of the prophylaxis, when necessary, should be given.

Abortive Treatment.—The first symptom of gonorrhea is moisture of the meatus, occurring four to six hours before the burning or stinging sensations are noticed. The meatus seems to remain moist after urination, and if a microscopic examination be made, the gonococcus can be found. If the application of the abortive treatment of Balenger be instituted, a great many cases can be cured in the first five days. The percentage rapidly decreases as the days go by, but even then the case runs a milder course. The treatment consists of 5 per cent argyrol or silvol solution, about twenty minims sealed in the meatus once a day for five days. It should remain sealed up for four or five hours. The treatment of a well-developed case requires more time, more attention and skill.

The question of irrigation, when to irrigate and when not to irrigate, has been frequently debated throughout the country by many of our best men, and it is not my intention to attempt to settle the question either way. It is generally accepted that to irrigate an acute gonorrhea is to invite complications, but when that question is raised we must take into consideration which method ultimately obtains the greatest number of cures. The intelligence of the patient must be taken into account. Most patients will refuse to come for treatment if you fail to do something to relieve their symptoms—that is, it may not be the best thing to irrigate, but if you irrigate you bring the discharge under control quicker. The patient is satisfied and remains with you; while if you give symptomatic treatment only, advising rest, bland diets, large quantities of water, to use nature's method of irrigation, or advise them to go to bed, which would be the ideal way to treat them, they will accuse you of charging them and doing nothing and will fail to return, but will seek aid at the hands of some druggist or friend, to eventually become chronic. I have no improvements to offer in the method or agents

used in irrigations, nor will I offer anything new on the treatment in the way of injections. However, I wish to call your attention to the ever-present new germicides that are thrown on the market at frequent intervals, with the statements that they will prove to be a real cure for gonorrhea in all stages. We should not become over-enthusiastic over any of these drugs and expect to cure all cases regardless of the complications. None of them can reach an infected epididymis or vas, and when any one reports such cures, we must revert back to our knowledge of anatomy and the nature of the gonococcus, which will assure us that they are over-enthusiastic.

Seminal Vesicles.—Referring again to the complications of seminal vesiculitis, it is now that we should depart from the old methods and use the more modern treatment, or rather use more common sense and treat the disease where the greatest amount of infection is located. The old method of stopping all local treatment and depending upon the so-called constitutional treatment to tide our patients over the critical period is no longer justified. We would be guilty of negligence to the best interest of our patients if we did not take advantage of the latest methods to treat these complications. It is true that some of them will recover without this treatment, but why run the risk of a chronic gonorrhea with all its sequelae?

Vasotomy.—Vasotomy should be done on all these cases without hesitation; it is easy, simple to perform and appeals to the judgment of an intelligent patient as being a reasonable and scientific treatment. The results are remarkable, effective and permanent. I will not go into the technique of the operation, but will invite your attention to Belfield's article in the *Journal A. M. A.*, and Smith in "Urological and Cutaneous Review."

The agent used to inject into the vas and seminal vesicles is usually argyrol, silvol or collargol. I have used mercurochrome in one-fourth of one per cent solution with good results. In fact, I had one case of several months' duration in which only one of the vesicles was injected, resulting in a cure. This was the case of a street car con-

ductor who suddenly decided that he could not afford to lose the time from work, and demanded that I let one side wait a while longer; however, in this case the side I opened was the one that had given most of the symptoms. In another case I put ten cc. of mercurochrome-220 solution in each side in two weeks after which he had a nocturnal emission containing so much of the medicine that he thought he had a hemorrhage. These cases were chronic and of long standing. The results were very gratifying and gave promise of proving mercurochrome-220 to be another good drug to use in these cases. These agents, when injected properly into the vas, remain quite a while in the seminal vesicles, rendering them free from infection.

A word of warning should be given here. Don't expect to cure every case of chronic gonorrheal infection of the genito-urinary tract with a vasotomy and injection of the seminal vesicles. Strictures, congenital and acquired, should be first removed.

In conclusion I wish to say that I agree with Belfield when he says: "The ancient belief in the incurability of gonorrhea, based on the obsolete idea that the disease in urethritis only, seemingly needs revision by the modern demonstration that acute gonorrhea is commonly urethrovesiculitis, requiring early treatment of the vesicles as well as of the urethra."

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CAESAREAN SECTION.*

By W. P. Watson, M. D.,
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Caesarean section has of late years become much more frequently done than a few years past. It is interesting to note the change in attitude in regard to the operation in the past twenty years. In 1900 comparatively few were performed. In 1920, on the other hand, "everybody is doing it," and the results are more favorable.

Nowadays Caesarean section is so safe that it is freely performed where formerly it would not have been even thought of. The great barrier to the success of the operation has been more removed since the general improvement of aseptic technic. As far as the operation is concerned, it is easy to perform, but the important points are in the handling of the case before the operation and the precautions taken to prevent infection and hemorrhage. If your patient has not had too many examinations before the operation, if the bag of waters is still intact, if no instrumentation has been attempted, and the operator uses all proper precautions during the operation, then he can feel safe that infection will be prevented. If the operator knows how to take care of his hemorrhage and control same, then he need have no fear of the hemorrhage. Being able to control hemorrhage and prevent infection, why should not the mother have an equal showing to get well following a Caesarean section, if done at the proper time, as she would have with any other abdominal operation?

The indications for doing the operation are as follows—absolute and relative. The absolute indication for Caesarean section exists when the parturient canal is narrowed so much that the child, even reduced by manipulating operations, cannot be gotten through with safety to the mother. A contracted pelvis or an immense child will give the absolute indications.

*Read at meeting of West Tennessee Medical and Surgical Association at Jackson, May, 190.

The relative indication will exist when the operator decides that the abdominal delivery offers better chances for both mother and child than delivery from below. It is largely subjective.

When the woman is in prime condition, which means that she is not infected and not exhausted by long labor and when, also, the child is in good condition, Caesarean section is comparatively safe for both. If the mother is infected, and not up to the above mentioned standard, then the results may not be so good.

Among the indications for Caesarean section, giving both mother and child a better chance for life, may be mentioned placenta praevia in some cases, eclampsia and abnormal presentations, and prolapsed cord might be added to this list.

The kind of operation to do depends, of course, on the case, the cause necessitating the operation, and the condition of the patient. The three principal operations are the Sanger, Porro, and the Kronig, the Sanger being the one of choice in the cases with prime condition; the Porro when the uterus contains myomatous tumors, or when there is cancer of the cervix; and the Kronig, possibly, is better to prevent a general peritonitis in neglected cases.

I wish to report a case in which I recently operated. Patient large, fleshy, very closely built, age 30, first pregnancy, was referred to me by Dr. B., of a nearby town. Two physicians had attended her during the previous night, with no progress. They found they had a large child and a face presentation to deal with. Knowing the possibility of an operation having to be done, these physicians were very careful with their manipulations, therefore the conditions were what we would term a prime condition for both the mother and child. After patient arrived at hospital she was anaesthetized and an attempt made to change the position of the presentation. The face was wedged down in pelvis so firmly that it seemed almost impossible to change it. We, deeming it safe for both mother and child, decided the Caesarean section the better procedure. The patient's condition being safe for the Sanger operation, this was the operation of choice. The patient's abdomen

was prepared as for any other abdominal operation. With plenty of assistants at hand so that no time would be lost in the operation, we consumed only fifty minutes from the time the incision was made until the abdomen was closed. The mother and child both survived and made an uneventful recovery, and returned home on the sixteenth day following the operation.

CLINICAL REPORTS

CASE OF LETHARGICA ENCEPHALITIS.

By Carroll Conway Turner, M. D.,
Memphis.

Mr. H. D. White, adult, male; age 31; farmer; married. Address, Amorel, Ark. Chief complaint, listlessness, increasing drowsiness; condition progressing for the past two weeks. Patient sent in by members of his family. Family history: Mother living and in good health; father living, in good health; one brother died two years ago with pulmonary tuberculosis; has another brother afflicted with tuberculosis now. Does not live on the same premises with this brother. Married; wife living and in good health and no miscarriages; children, two, both living; good health. Denies family history of cancer, insanity, epilepsy or syphilis, so far as he knows.

Past History, Habits.—Farmer; has always been in good health until onset of present illness. Smokes moderately; does not chew tobacco. Denies use of alcoholic beverages or drugs. Has been a moderate liver, leading a healthy outdoor life. Medical: Has had the usual diseases of childhood, and malaria; last onset of chills and fever two years ago. Typhoid fever five years ago. Surgical, negative. Venereal: Denies gonorrhea and syphilis.

Present History: On February 5, 1920, patient began a siege of influenza, lasting through a period of ten days. This illness, was characterized by excessive headache, lachrymation, excessive mucoid discharges from nose and throat, cough, temperature ranging from 100 to 102, and night sweats.

He denies that sickness was complicated by pneumonia, and says that he was not confined to bed during the entire period of his illness. The cough which he had during the sickness lasted for a week afterward, but was not productive.

Patient got up and went about his usual duties on the farm, but did not feel well, got tired very easily, and complained of generalized pains through the body and chest, and almost continuous headache, with general malaise.

Five days ago patient noticed that he was beginning to suffer great drowsiness and had great difficulty in staying awake, especially when he sat in front of a fire. It is related by members of his family that he went to sleep while eating his meals at the table. This drowsiness progressed to almost a constant stuporous condition. His relatives became alarmed and brought him to Memphis for care.

For the last three days the patient had complained of considerable pain above the left eye, radiating along the zygoma to the left temporal and left mastoid regions. He says now that he suffers great pain in the lower occipital area and down the back of the neck. Relatives say they have noticed his rapid breathing for about a week. Patient has decided constipation.

Summary of Present History: (1) Influenza; (2) convalescence, general malaise and headache; (3) a progressive condition of mental torpor; (4) stupor.

Chief Complaint: Listlessness, increasing drowsiness. Patient lies in a profound lethargy, with eyes partly shut and lower jaw dropped, mouth open. Respiration rapid and deep. Can be aroused with difficulty. He sits up and eats his meals on the edge of the bed, and relates a coherent, intelligent history about his illness. As soon, however, as he is left to himself he falls back in the bed and lapses into a deep sleep.

Physical Examination: Patient is a well developed, fairly well nourished, white, adult male. He weighs about 135 pounds. Height, 5 feet, 8 inches.

Head, normal in size and contour. No signs of injury or trauma about the scalp.

Face: The left side of the face is masklike. The cheek pulls in and out with respiration. The mouth is drawn slightly to the right. The patient says food seems to stick in the left jaw. The fauces are flushed equally.

Eyes: The sclera are injected. Slight lateral nystagmus is present, the pupils unequal. The left pupil is dilated and fixed. Right pupil normal. The left external rectus seems weak. The grounds: Nothing abnormal in the right ground, except margin of the disk is dim, veins not tortuous. The left ground: Veins engorged and tortuous, arteries small. Disk margin is not clear cut and disk looks edematous and puffy.

Mouth, drawn slightly to the right. Lips are dry and herpetic. The tongue deviates to the right, lacks tremor, is thick, coated and dry. No sordes on teeth. Dentition and gums fair.

Neck: No stiffness, no torticollis, no abnormal pulsation, no masses. Thyroid not enlarged.

Chest, nothing except distant crepitant and sub-crepitant rales over both lungs, above and below.

Heart is not enlarged; rhythm normal; rate slightly increased, apex at normal site. Sounds are good, valvular quality. Pulse rhythm normal, rapid rate, very low tension.

Abdomen normal; no palpable spleen.

Extremities: There is slight weakness of the right arm; right hand grasp is not as strong as left (patient is right-handed). No weakness of left arm or hand. No spasticity of extremities. No ataxia.

Reflexes: Abdominal reflexes absent; knee jerk, normal; Brudzinski sign, absent; Romberg's sign, absent; Rabinski's sign, suggestive; Gordon's sign, absent; ankle clonus, absent; mandibular and bicipital, not accentuated. On admission to the hospital temperature was 99.6, pulse 76, respiration 30.

Laboratory Findings.

Urine, color, yellow; sp. grav., 1025; reaction, acid; albumen, negative; sugar, negative. Microscopic examination shows a few pus and squamous cells and a rare hyaline cast.

Blood: Total white count, 6,900; 62 polys; 28 small; 1 large; no malarial plasmodia found; total red, 4,650,000; hemgb., 70; findings of secondary anemia, moderate.

Widal: Negative.

Wassermann: Negative.

Spinal Fluid: Increased in pressure; about 30 cc. obtained; clear; cell count, 9; globulin, negative; sugar, negative; Wassermann, negative; smear, negative; culture, negative.

Blood Pressure: Systolic, 100; diastolic, 70.

During the course of the malady the temperature never rose above 98.6. On the fourth day it fell to 96.4 at 5 o'clock in the afternoon, with a pulse of 64. This was repeated on the eighth day. No other physical signs were present and no chill to account for the temperature.

On the second day the patient's condition looked grave and he became very cyanotic, pulse very weak, but normal in rate and regular. What few physical findings were apparent in the chest when the patient was admitted disappeared after the second or third day.

Spinal fluid on the second day still showed increased in pressure. Clear. Showed eleven cells, otherwise negative; 25cc. were removed. Gramm's stain and acid fast stain of smears both negative. Bouillon and agar cultures of spinal fluid were negative, and a second Wassermann was negative.

On the fourth day the left dilated pupil came down somewhat to normal, and was less sluggish in reaction to light. On the next day the right pupil began to dilate, and on the following day was dilated and fixed in reaction. This pupil remained in this state for three days, finally coming down to normal, and both pupils remained normal thereafter. Respiration still rapid.

One week after admission a second eye-ground examination showed the left disk less edematous, the veins tortuous and engorged and the arteries fuller. The left strabismus less marked than on admission. After luncheon he reads the paper occasionally in the afternoon. He is markedly weak and the slightest exercise tires him, and he sleeps most of the day and night. However, patient is less stuporous.

On the fourteenth day the patient sat up by the bed in a chair. Respiration still rapid and deep. His speech is a monosyllabic drawl. Tongue protrudes in the middle line and the left facial paralysis has almost entirely disappeared. There is some weakness still in the right arm and hand grasp.

On the sixteenth day the patient dressed and went out in the yard. He still suffers from drowsiness in the afternoon and sleeps for two or three hours, but these periods are lessening each day.

On the nineteenth day the patient was discharged.

Treatment.—This consisted of free purgation, soft diet, at intervals of four hours. Lumbar puncture every second day until the spinal pressure ceased to show any increase. Ten grains of urotropin was given by mouth every four hours.

When the patient was dismissed, on the nineteenth day, he had lost the lethargic, indifferent expression which had previously characterized him. His respiration was still above 24. His speech was better, and he showed marked improvement. The last physical examination revealed no positive findings. The patient left the hospital and returned home by railroad, unaided.

WHAT IS THE THERAPEUTIC VALUE OF THE HYPOPHOSPHITES?

A research conducted by the Council on Pharmacy and Chemistry shows there is no reliable evidence that they exert a physiologic effect. It has not been demonstrated that they influence any pathologic process. They are not foods. If they are of any use, that use has not been discovered. The hypophosphites were introduced into medicine by Churchill, who advanced the theory, long since discarded, that the so-called tuberculosis diathesis was due to a phosphorus deficiency. It is now known that little phosphorus, if any, is assimilated from hypophosphites—far less than from phosphorus compounds of ordinary foods. As a result of the power of advertising, many physicians still prescribe hypophosphite combinations.—*Jour. A. M. A.*, June 12, 1920, p. 1661.

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Devoted to the Interests of the Medical Profession of Tennessee

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EDITORIALS**FEE SPLITTING.**

In spite of the condemnation heaped upon the evil practice, in spite of the efforts of state medical societies and organizations like the American Medical Association, the American College of Surgeons, and others, and in spite of laws enacted by several states—Tennessee among them—fee splitting is yet being engaged in in some places, if common report is to be believed. The medical press of the whole nation has preached against this pernicious practice with great fervor, trying to bring every doctor to a realization of the meanness and baseness involved in fee splitting. We believe that the result of this preaching has been to convince all but a slender few of the physicians of the country that the thing is wrong. We believe, too, that there is more talk of fee splitting than is justified by fact, and that very few doctors who make any pretense to decency or who make any claim of observance of the rules of ethics are now guilty of selling and buying patients.

Within the year numerous publications of the lay press have discussed the subject of fee splitting and have exposed the evils of such practice. These—newspapers and magazines—have performed a valuable service to the public by giving information that will be helpful to the people in protecting themselves against unprincipled dollar grabbers.

Dr. W. A. Evans, Health Editor of the Chicago Tribune, has recently contributed an article or two on fee-splitting. Just how W. A. Evans, a Mississippian by birth, can contribute anything to the Chicago Tribune or maintain any sort of connection with that paper as long as it insists upon carrying on a slanderous, dirty, mendacious and unprin-

ciple "bloody shirt" campaign against the South, is more than we can understand. However, his articles on fee splitting have attracted wide attention and it is to be hoped that they will have a most helpful influence in bringing about the discontinuance of a practice which is wrong in principle and harmful to an extreme degree.

Tennessee has a law against fee splitting. If any Tennessee physicians are yet engaging in the practice we hope this law will soon be put to the test, and that it will stand to the end.

USE OF ARSENIC PREPARATIONS IN TREATMENT OF SYPHILIS.

Treasury Department

Bureau of the Public Health Service.

Bureau Circular Letter No. 219.

Medical Officers, U. S. Public Health Service and Others Concerned:

Your attention is invited to the extensive exploitation through advertisements in professional journals and otherwise of various arsenic preparations which are not related to the arsphenamine group. The preparations referred to are sold with claims in regard to their value in the treatment of syphilis, which are unwarranted.

In the opinion of this office it is in the interest of all concerned that the subcutaneous, intramuscular or intravenous use of arsenic in the treatment of syphilis be confined to preparations of the arsphenamine group as these agents are of established value and are produced under the regulations of the Public Health Service. The following firms are now licensed for the manufacture of arsphenamine and neo-arsphenamine:

Dermatological Research Laboratories, 1720 Lombard Street, Philadelphia, Pa.; H. A. Metz Laboratories, 122 Hudson Street, New York, N. Y.; Diarsenol Co., Inc., Buffalo, N. Y.; Takamine Laboratories, Clifton, N. J.

The Lowy Laboratory, of Newark, N. J., has been granted a license to prepare a stable solution of arsphenamine.

It is not the desire of the Bureau to limit clinicians in the choice of agents of recognized worth, but in the case of arsenic preparations, not members of the arsphenamine group, the available evidence indicates that their routine use is inadvisable in the treatment of syphilis. If it is desired to use any of these preparations in a purely experimental way, previous authority from the Bureau should be secured. Applications for this authority should be accompanied by a statement as to the composition of the drug, including the structural formula and the reason for its use. All information available on the value of the preparation should be forwarded.

Receipt of this circular should be acknowledged and marked "V. D. Division."

H. S. CUMMING, Surgeon-General.

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Greene County.—J. B. Bell, Greeneville, R. F. D.; S. T. Brumley, Greeneville; F. C. Britton, Greeneville, R. F. D.; Chas. L. Boyd, Greeneville; W. M. Bright, Chuckey, R. F. D.; C. Y. Bailey, Baileytown; M. A. Blanton, Baileytown; J. B. Brown, Mosheim; T. D. Cloyd, Mosheim; W. A. Carter, Bull's Gap; E. C. Donnold, Greeneville; L. E. Dyer, Greeneville; J. C. Dyer, Mohawk, R. F. D.; M. P. Everhart, Midway; C. P. Fox, Greeneville; J. S. Holt, Greeneville, Route 9; J. G. Hawkins, Baileytown; T. B. Hughes, Cheyenne Agency, S. D.; R. O. Huffaker, Greeneville; G. S. Hays, Greeneville; J. F. Lane, Greeneville; C. S. Love, Greeneville, Route 9; W. T. Mathes, Greeneville; J. Carson Moore, Jearaldstown; E. M. Myers, Bull's Gap; H. M. Taylor, Greeneville; S. W. Woodyard, Greeneville; C. W. Yokely, Baileytown.

Grundy County.—David H. Bryan, Palmer; L. A. Carden, Pelham; Douglas Hays, Tracy City; W. C. Hembree, Tracy City; Henry Lockhart, Coalmont; W. P. Stone, Tracy City; Thomas F. Taylor, Monteagle.

Hamilton County (all of Chattanooga except where otherwise noted).—T. E. Abernathy, Volunteer Building; E. H. Adkins, Volunteer Building; W. D. Anderson, James Building; Wm. E. Anderson, James Building; J. D. Adams, Alton Park; James H. Atlee, 219 Oak Street; E. C. Anderson, 726½ Market Street; G. B. Alder, 707 Walnut Street; Y. L. Abernathy, Temple Court; W. P. Applegate, 1300 Pennsylvania Avenue, Washington, D. C.; E. B. Anderson, Hamilton Bank Building; J. L. Bibb, Hamilton Bank Building; J. C. Brooks, Volunteer Building; J. H. Barnett, Volunteer Building; W. G. Bogart, 518 Georgia Avenue; A. C. Broyles, Graysville, Tenn.; W. M. Bogart, North Chattanooga; W. A. Banks, 400 Chamberlain Avenue; Stanton H. Barrett, City Hall; E. H. Byrd, East Chattanooga; J. M. Broyles, East Lake; L. P. Brooks, Van Deman Building; F. B. Bogart, 710 Georgia Avenue; R. M. Colemore, Volunteer Building; J. C. Cunningham, Hixon, Tenn.; J. E. Clark, East Lake; W. H. Cheney, 710 Georgia Avenue; R. C. Currey, South Pittsburg, Tenn.; W. W. Dickey, Volunteer Building; K. D. Davis, Loveman Building; G. Manning Ellis, Volunteer Building; T. N. Eblen, Tyner, Tenn.; J. C. Eldridge, Jr., North Chattanooga; H. L. Fancher, James Building; H. Quigg Fletcher, James Building; S. A. Fowler, 2601 Cowart Avenue; F. J. Godsmark, Volunteer Building; E. A. Gilbert, James Building; A. E. Goodloe, James Building; J. J. Gee, Loveman Building; C. H. Guernsey, 460 Third Avenue, North; J. E. Green, 224½ East Main Street; J. Lee Goodwin, Texas State Board of Health, Austin, Tex.; Wm. J. Hillas, Volunteer Building; Henry H. Hampton, Volunteer Building; J. B. Haskins, Volunteer Building; S. T. Hubbard, Volunteer Building; F. J. Hackney, Volunteer Building; J. Webster Horton, James Building; J. H. Holman, care Elks Club; E. M. Harrison, James Building; W. T. Hope, 508 Vine Street; J. F. Hager, Alton Park; A. W. Hilliard, 826½ Market Street; G. P. Haymoore, 602 Georgia Avenue; J. M. Hogshead, 602 Georgia Avenue; P. R. Hysinger, East Chattanooga; O. G. Hughes, Ooltewah, Tenn.; C. Holtzclaw, 213 East Main Street; Otis H. Johnson, Volunteer Building; J. L. Johnson, Volunteer Building; Joseph W. Johnson, Volunteer Building; B. L. Jacobs, Erlanger Hospital;

H. A. Laws, Hamilton Bank Building; H. P. Larimore, Volunteer Building; H. Clay Long, Eastern State Hospital, Bearden, Tenn.; Stewart Lawwill, 602 Georgia Avenue; W. E. Lindsay, Volunteer Building; M. A. Meacham, Hamilton Bank Building; J. W. McQuillan, Hamilton Bank Building; N. J. Minter, Volunteer Building; J. L. D. McPheeters, Volunteer Building; S. Z. Marchbanks, James Building; J. B. McGee, 224½ East Market Street; D. C. Morris, Main and Market Street; M. M. Martison, 632½ Market Street; E. T. Newell, 707 Walnut Street; E. Dunbar Newell, 707 Walnut Street; H. O. Hull, Dodds and Chamberlain Avenues; W. L. Nichols, Box 126, Whitwell, Tenn.; J. E. Nelson, St. Elmo; W. M. Orr, Alton Park; E. W. Patton, Hamilton Bank Building; A. T. Peay, 632½ Market Street; C. C. Patch, Lookout Mountain; John A. Price, Jasper, Tenn.; Herman Renner, Volunteer Building; G. M. Roberts, Volunteer Building; J. H. Revington, James Building; E. E. Reisman, Van Deman Building; N. S. Ritchie, Ebenezer, Tenn.; Geo. F. Ryan, Times Building; Willard Steele, Hamilton Bank Building; John B. Steele, Volunteer Building; Frank T. Smith, 404 Oak Street; Fred B. Stapp, 9½ East Eighth Street; P. D. Sims, 40 Clark Street; G. Sundstrom, General Hospital, Osteen, N. C.; J. M. Selden, 247 Merriamore Avenue, Asheville, N. C.; Bayard Sullivan, Oteen, N. C.; Leopold Shumacher, 10 West Eighth Street; J. H. St. John, War College, Washington, D. C.; C. A. Shelton, Main and Market; D. C. Shelton, Jasper, Tenn.; L. T. Stem, East Lake, Fla.; James R. Smith, Volunteer Building; J. H. Taylor, Hamilton Bank Building; V. T. Travis, James Building; J. B. Virgle, Hamilton Bank Building; Raymond Wallace, Hamilton Bank Building; Daniel N. Williams, Volunteer Building; W. J. Winter, Volunteer Building; E. B. Wise, James Building; G. Victor Williams, Van Deman Building; Jay G. Woods, Van Deman Building; B. S. Wert, Van Deman Building; R. B. Watson, U. S. Naval Air Station, Rockaway Beach, L. I.; O. B. Wunschow, 114 Seventh Street; Geo. R. West, 10 West Eighth Street; J. S. B. Woolford, 602 Georgia Avenue; Geo. R. Walher, 202 North Dodds Avenue; A. B. Woolner, Temple Court; N. May Waite, Temple Court; T. D. Walker, Soddy, Tenn.; G. P. Wilbanks, Rossville, Ga.; S. I. Yarnell, 112½ East Seventh Street.

Hamblen County.—G. P. Bingham, Russellville; J. F. Campbell, Morristown; C. T. Carroll, Morristown; J. J. Fuller, Morristown; P. L. Henderson, Morristown; W. E. Howell, Morristown; L. H. Milligan, Morristown; F. F. Painter, Morristown; H. G. Pangle, Morristown; J. W. Pierce, Morristown; W. G. Ruble, Morristown; S. M. Ryburn, Morristown; D. E. Shields, Morristown; G. W. Smithers, Rutledge; O. R. Tomlinson, Tate; I. D. Walker, Alpha.

Hawkins County.—R. A. Anderson, Surgoinsville; W. H. Armstrong, Rogersville; J. K. Baker, Mooresburg; R. A. Doty, Rogersville; J. E. Douglas, Pressmen's Home; B. F. Horner, St. Clair; John N. Jones, Burem; R. D. Keller, Persia; W. C. Lyons, Surgoinsville; G. C. Lyons, Surgoinsville; J. S. Lyons, Rogersville; J. E. Miller, Rogersville; J. C. Palmer, Rogersville; G. M. Reecer, Church Hill; O. M. Swaney, Treadway.

Haywood County.—John T. Allen, Brownsville; John M. Chambers, Brownsville; T. C. Chapman, Brownsville; J. L. Edwards, Brownsville; F. P. Hess, Jones; E. R. Mulheron, Brownsville; G. G. Mulheron, Brownsville, R. F. D.; A. H. Sorrelle, Brownsville.

Hardin County.—George Chambers, Nixon; H. L. Douglas, Lutts; C. F. Gilbert, Savannah; L. A. Parker, Saltillo; L. C. Smith, Morris Chapel; E. B. Walker, Savannah; G. I. Walker, Savannah; O. H. Williams, Savannah; B. M. Williams, Kendrick, Miss., Route 2.

Hardeman County.—A. E. Black, Toone; L. N. Barnard, Bolivar; C. B. Currey, Bolivar; E. W. Cocke, Bolivar; G. M. Dorris, Bolivar; C. L. Frost, Middleton; H. M. Milstead, Hornsby; L. Pope, Hickory Valley; W. H. Siler, Montezuma; Robt. W. Tate, Bolivar.

Henderson County.—J. M. Arnold, Lexington; O. E. Bolen, Wildersville; D. W. Bradfield, Wildersville; M. P. Boyd, Juno; S. H. Brazelton, Sardis; G. A. Brandon, Lexington; R. H. Davidson, Lexington; J. H. England, Luray; J. F. Groves, Juno; J. F. Goff, Darden; W. I. Howell, Wildersville; J. W. Hendrix, Darden; W. F. Huntsman, Lexington; C. H. Johnston, Lexington; J. P. Joyce, Lexington; J. T. Keeton, Sardis; R. T. Keeton, Sardis; R. T. Keeton, Scott's Hill; E. G. Maxwell, Darden; R. H. Milam, Chesterfield; J. P. Mackey, Sardis, Route 1; J. C. Stinson, Reagen; J. N. Smith, Cuba Landing; E. E. Waller, Juno; R. L. Wylie, Scott's Hill; W. T. Watson, Lexington; J. E. Powers, Lexington; S. T. Parker, Lexington.

Henry County.—G. T. Abernathy, Paris; Earl Goyer, Jackson; W. Q. Hagler, Mansfield; George R. McSwain, Paris; I. A. McSwain, Paris; J. H. McSwain, Paris; A. A. Oliver, Paris; R. J. Perry, Springville; Edward Plotkin, Pope, Route 1; R. A. Springer, Paris; Elroy Scruggs, Paris; Henrietta Veltman, Paris.

Hickman County.—John S. Beasley, Centreville; Rufus P. Beasley, Lyles; Wm. D. Cagle, Lobelville; Albert N. Doyle, Little Lot; Wm. K. Edwards, Centreville; C. V. Stephenson, Centreville; George N. Springer, Hohenwald; Joseph B. Webb, Goodrich.

Jackson County.—L. R. Anderson, Gainesboro; Frank B. Clark, Haydensburg; R. C. Gaw, Gainesboro; Henry P. Loftis, Gainesboro; N. M. McCoin, Gainesboro, Route 3; J. D. Quarles, Whiteville; C. E. Reeves, Gainesboro.

Jefferson County.—Turner A. Caldwell, Dandridge; H. L. Campbell, Strawberry Plains; Ben E. Cline, Strawberry Plains; N. M. Dukes, Strawberry Plains; N. H. Doane, New Market; T. R. French, Dandridge; J. I. Huggins, Dandridge; Wm. E. Roberts, Talbotts, R. F. D.; W. T. King, Jefferson City; H. L. Tarr, Jefferson City; B. M. Tittsworth, Jefferson City; W. H. Taylor, New Market; P. A. Tinsley, Dandridge.

Knox County (all of Knoxville, except where otherwise noted).—Eben Alexander, Holston Bank Building; W. P. Atchley, Holston Bank Building; A. B. Anderson, Holston Bank Building; S. D. Acuff, North Central Street; Herbert Acuff, West Church Street; W. S. Austin, West Church Street; H. L. Acuff, American Bank Building; B. D. Bosworth, Holston Bank Building; William Bowen, Holston Bank Building; L. O. Blalock, Deaderick Building; J. T. Barbee, Holston Bank Building; H. J. Bolin, American Lime Co., Mascot, Tenn.; G. W. Booker, Gay and Church Streets; M. M. Copenhaver, Burwell Building; K. C. Copenhaver, Burwell Building; H. L. Carroll, Burwell Building; W. A. Catlett, Holston Bank Building; H. E. Christenbery, Holston Bank Building; C. M. Capps, McTownlee Building; S. F. Casenburg, McTownlee Building; W. F. Christenbery, Lonsdale, Tenn.; Wm. R. Cochrane, Walnut Street; C. J. Carmichael, Wal-

nut Street; Geo. L. Coffey, South Gay Street; A. W. Carr, North Central Street; B. B. Cates, 508 W. Clinch Street; W. G. Casenburg, North Broadway; H. K. Cunningham, 425 West Church Street; R. E. Donohue, Arnstein Building; V. C. Dail, Holston Bank Building; W. T. DeSautelle, Holston Bank Building; C. C. DeArmond, Empire Building; R. V. DePue, Walnut Street; William Delpauch, McGee Street; J. J. Ellis, Empire Building; C. B. Evans, Lonsdale, Tenn.; T. F. Fitzgerald, Clinton Pike; E. H. Ford, Holston Bank Building; W. A. Greer, Empire Building; Searle Gillespie, Empire Building; E. A. Guynes, Walnut Street; A. R. Garrison, Byington, Tenn.; H. E. Goetz, Walnut Street; J. Victor Henderson, Holston Bank Building; Oliver W. Hill, Holston Bank Building; Lucius D. Hill, Holston Bank Building; J. C. Hill, Bearden, Tenn.; Samuel Hunt, West Church Street; S. H. Hodge, Walnut Street; C. H. Henderson, Mascot, Tenn.; M. G. Herrell, Powell Station; B. V. Howard, Church Street; V. D. Holloway, Walnut Street; L. A. Haun, Holston Bank Building; C. B. Jones, Holston Bank Building; T. R. Jones, Walnut Street; C. L. Johnston, P. O. Box 164; N. J. Kelso, Church Street; A. G. Kern, Walnut Street; A. G. Kyle, Walnut Street; J. H. Kincaid, West Church Street; J. Marshall Lee, Arnstein Building; W. N. Lynn, Arnstein Building; R. B. Layman, Empire Building; Walter Luttrell, McTownlee Building; M. H. Lee, Bearden, Tenn.; V. C. Layne, Keystone Building; R. E. Lee Smith, Eastern Hospital, Bearden, Tenn.; Joseph Lyons, Ft. Sanders Hospital; W. C. McCannon, Arnstein Building; R. L. McReynolds, Holston Bank Building; S. R. Miller, Church Street; H. H. McCampbell, Walnut Street; H. T. McClain, North Central Street; W. C. McClain, Commerce Avenue; C. F. Moonney, Keystone Building; Carl R. Martin, Fountain City, Tenn.; Thos. P. Miller, Walnut Street; R. F. McCrary, Keystone Building; R. H. Newman, Burwell Building; W. S. Nash, Walnut Street; W. S. Ogle, McTownlee Building; B. L. Ogle, McTownlee Building; R. P. Oppenheimer, West Church Street; W. W. Potter, Arnstein Building; S. B. Peters, McTownlee Building; H. L. Peters, Gay Street; Robert Patterson, Church Street; Reese Patterson, West Church Street; J. B. Parker, Inskip, Tenn.; A. B. Peck, Gay Street; A. L. Rule, Arnstein Building; M. S. Roberts, Arnstein Building; Olin Rodgers, Holston Bank Building; C. W. Rain, Empire Building; W. D. Richmond, Empire Building; C. E. Ristine, Market Street; L. L. Sheddan, Burwell Building; Andrew Smith, Arnstein Building; W. K. Stater, Holston Bank Building; J. A. Sisk, Empire Building; G. W. Stone, Lone Mountain, Tenn.; J. B. Swafford, Eastern Seate Hospital, Bearden, Tenn.; J. W. Skaggs, Walnut St.; J. P. Tillery, Holston Bank Bldg.; J. B. Thielen, Holston Bank Bldg.; J. M. J. Van De Griff, Fountain City, Tenn.; E. G. Wood, Burwell Building; W. P. Wood, Burwell Building; J. Q. R. West, Arnstein Building; N. A. Williamson, Arnstein Building; M. C. Wright, Empire Building; D. H. Williams, Walnut Street; W. H. L. White, Young Building; W. L. Wallace, North Broad Street; J. D. Weaver, North Fifth Street; Frank LeRoy Young, Young Building; R. M. Young, Walnut Street; E. R. Zemp, Walnut Street.

Lake County.—W. S. Alexander, Ridgley; R. B. Alexander, Tiptonville; R. B. Griffin, Ridgley; R. W. Griffin, Tiptonville; J. F. Griffin, Tiptonville; J. A. Jones, Wynnburg; E. T. Kelty, Tiptonville; W. L. Summer, Ridgley.

Lauderdale County.—J. C. Blankenship, Halls; S. C. Blankenship, Halls; S. T. Chapman, Halls; J. R. Conyers, Gates; J. H. Dunavant, Henning, Route 3; B. R. Danford, Henning; J. P. David, Henning; S. M. Glenn, Ripley, Route 7; I. L. Goodwyn, Halls; William Hall, Halls, Route 3; C. L. Johnston, Ripley, Route 4; W. K. Lackey, Ripley; J. B. Lackey, Ripley; J. R. Lewis, Ripley; J. H. Lackey, Ripley; G. A. Lusk, Ripley; T. E. Miller, Ripley, Route 4; W. D. Miller, Ripley; C. R. Morrison, Curve; A. P. Massengill, Halls; J. R. Osteen, Ripley; T. F. Pipkin, Henning; P. Y. Rainey, Goldust; J. W. Sanford, Ripley; H. W. Sanford, Henning; W. C. Sanford, Henning; W. H. Tucker, Halls, Route 3; C. B. Walker, Ripley; R. B. Wilson, Gates.

Lincoln County.—J. M. Anderson, Fayetteville; E. K. Blair, Fayetteville; J. D. Bryant, Fayetteville; R. F. D.; W. F. Cannon, Fayetteville; D. M. Goodner, Fayetteville; C. L. Goodrich, Fayetteville; J. T. Graham, Mulberry, Route 1; A. L. Griffith, Elora; A. G. Hays, Coldwater; D. T. Hardin, Ardmore, R. F. D.; E. J. Holland, Mulberry; W. S. Joplin, Petersburg; J. M. McWilliams, Fayetteville; T. A. Patrick, Fayetteville; J. E. Sloan, Boonsville; J. M. Shelton, Kelso, R. F. D. 1; W. P. Sumners, New Market, Ala.; J. M. Wyatt, Fayetteville; A. L. Yearwood, Fayetteville.

Loudon County.—J. E. Eblen, Lenoir City; W. T. Foute, Lenoir City; T. J. Hickman, Lenoir City; H. A. P. Harrison, Loudon; J. J. Harrison, Loudon; Ambrose Jones, Greenback; J. T. Leeper, Lenoir City; W. D. McDonald, Lenoir City; Halbert Robinson, Loudon; W. D. Padgett, Lenoir City.

McNairy County.—J. J. Abernathy, Corinth, Miss.; E. L. Baker, Adamsville; W. T. Bell, Selmer; W. M. Barnes, Finger; O. C. Doty, Savannah; J. R. Davis, Ramer, Route 2; J. A. Eason, Adamsville; W. H. Hodges, Finger; J. G. Howells, Stantonville; H. L. Harbin, Selmer; Thos. A. Kirkland, 201 Broad Street, Binghampton, Tenn.; R. M. Kendrick, Selmer; H. L. Sanders, Selmer; J. R. Smith, Selmer; E. M. Smith, Bethel Springs; E. C. Sanders, Stantonville; N. A. Tucker, Finger; W. W. Wallace, Selmer.

McMinn County.—Wm. R. Arrants, Athens; R. A. Brock, Athens; J. P. Brendle, Englewood; L. M. Copenhagen, Englewood; Joseph McGahey, Niota; J. L. Proudfoot, Athens; J. O. Nichols, Etowah; F. W. Stanton, Athens; Gus Shipley, Athens; H. T. Taylor, Calhoun.

Madison County.—B. C. Arnold, Jackson; J. M. Arnold, Jackson; J. A. Blackman, Jackson; S. R. Brown, Jackson; G. W. Brashear, Spring Creek; J. A. Crook, Jackson; J. L. Crook, Jackson; C. A. Chaffey, Beech Bluff; J. M. Currey, Mercer; A. B. Dancy, Jackson; W. L. Duckworth, Jackson; W. B. Eason, Jackson; W. T. Fitts, Jackson; R. L. Greer, Norwood; S. A. Henderson, Jackson; F. B. Hamilton, Jackson; Herman Hawkins, Jackson; J. T. Herron, Jackson; Stanford M. Herron, Jackson; J. D. Hopper, Huntersville; G. F. Jones, Denmark, Tenn.; Horace Jones, Jackson; P. B. Lusk, Jackson; J. W. McClaran, Jackson; Frank M. Murtaugh, Jackson; Ambrose McCoy, Jackson; W. T. Rochelle, Jackson; W. B. Russell, Chanchow, Ku, China, care Chanchow General Hospital; W. G. Saunders, Jackson; Kelly Smythe, Bemis; A. M. Tullios, Okmulgee, Oklahoma; G. W. Williamson, Jackson; Chas. Webb, Jackson; L. L. Webb, Carroll.

Maury County.—H. O. Anderson, Williamsport; T. B. Brown, Columbia; W. E. Black, Columbia; P. D. Biddle, Columbia; M. A. Beasley, Hampshire; R. M. Church, Hamshire; J. S. Covey, Glendale; G. C. English, Mt. Pleasant; P. H. Faucett, Columbia; C. A. Forgey, Columbia; C. O. Fowler, Springhill; H. A. Gant, Columbia; T. J. Hardison, Carter's Creek; J. C. Hardin, Springhill; A. S. Horsley, Columbia; J. H. Jones, Mt. Pleasant; W. H. Kittrell, Mt. Pleasant; W. E. Martin, Columbia; J. C. Morrison, Mt. Pleasant; J. C. Morrison, cmfwy cmfwyp cmf wpycfwmypl2 C. D. Newlin, Columbia; O. J. Porter, Columbia; Robt. Pillow, Jr., Columbia; Robt. Pillow, Sr., Columbia; R. S. Perry, Columbia; E. M. Ragsdale, Santa Fe; L. E. Ragsdale, Williamsport; W. K. Sheddan, Columbia; M. B. Smiser, Culleoka; J. W. Wilkes, Columbia; J. G. Williamson, Columbia; George Williamson, Columbia; B. H. Woodard, Springhill; M. F. Walker, Santa Fe; Chas. D. Walton, Mt. Pleasant; W. R. Webb, Hampshire; Watt Yeiser, Columbia.

Marshall County.—R. G. Baxter, Caney Springs; J. C. Crunk, Lewisburg; V. H. Culbertson, Chapel Hill; M. D. Dryden, Petersburg; C. W. Dickey, Cornersville; W. T. Eatherly, Chapel Hill; F. H. Gant, Cornersville; S. T. Hardison, Lewisburg; C. C. Hardison, Lewisburg; J. A. Hardison, Lewisburg; C. P. Marsh, Petersburg; J. W. Read, Belfast; W. T. Sharp, Farmington; T. R. Logan, Lewisburg; C. W. Womack, Lewisburg; J. B. White, Lewisburg; Garrett White, Chapel Hill; L. E. Wheat, Cornersville.

Monroe County.—W. H. Arrants, Sweetwater; E. W. Bagwell, Madisonville; L. L. Barnes, Venore; Berry Crofts, Tellico Plains; J. A. Hardin, Sweetwater; C. S. Jenkins, Tellico Plains; R. C. Kimbrough, Madisonville; L. A. Ledford, Madisonville; W. W. Leonard, Mt. Vernon; W. A. McClain, Sweetwater; J. A. McCullum, Venore; S. N. Penland, Madisonville; T. M. Roberts, Sweetwater; M. C. Shearer, Madisonville; M. D. Shearer, Tellico Plains.

Montgomery County.—J. W. Brandau, Clarksville; George Brandau, Clarksville; Howard Edmondson, Clarksville; M. W. Ellis, Clarksville; M. L. Hughes, Clarksville; J. K. Ledbetter, Clarksville; R. B. Macon, Clarksville; H. A. Nesbitt, Cunningham; Lewis Neblett, Slayden; John Ross, Clarksville; F. J. Runyon, Clarksville; B. F. Runyon, Clarksville; J. D. Slayden, Clarksville; Roy Webb, Clarksville.

Morgan County.—A. Byrd, Wartburg; H. E. Heacker, Coal Field; S. M. Jones, Sunbright; J. D. Lindsay, Catoosa; J. F. Love, Wartburg.

Obion County.—J. D. Adkinson, Union City; J. D. Adams, Hornbeck; L. D. Boaz, Harris; Swan Burruss, Woodland Mills; M. A. Blanton, Union City; J. D. Carlton, Union City; C. J. Carter, Colorado Springs, Colo.; Jas. F. Darnall, Obion; Ilar Glover, Troy, Route 3; J. A. Howard, McConnell; J. B. Hibbetts, Union City; B. F. Loring, Union City; Ira H. Jordan, Ledbetter Building, Franklin and Seventh Streets, Michigan City, Ind.; C. C. Marshall, Hornbeck; D. C. Maddox, Union City; C. L. Mulherin, Hornbeck; P. M. Matlock, Elbridge; L. D. Nichols, Hickman, Ky., Route 5; Ira Park, Union City; P. W. Prather, Woodland Mills; H. W. Qualls, Union City; W. F. Roberts, Troy; J. L. Roland, Obion; J. B. Sharp, Obion; M. L. Smith, Fulton, Ky.; E. H. White, Rives; F. W. Watson, Union City; J. L. Wright, Elbridge.

Overton County.—W. M. Breeding, Livingston; W. M. Brown, Hilham; J. D. Capps, Livingston; J. W. Davis, Windle; J. F. McDonald, Nettle Carrier; A. D. Qualls, Livingston.

Polk County.—E. M. Akin, Copperhill; W. Y. Gilliam, Copperhill; A. J. Guinn, Ducktown; F. O. Geisler, Isabella; T. J. Hicks, Copperhill; L. E. Kimsey, Ducktown; W. W. Kimsey, Ducktown; F. M. Kimsey, Ducktown; A. W. Lewis, Copperhill; C. W. Strauss, Copperhill.

Putnam County.—Samuel Denton, Buffalo Valley; J. F. Dyer, Cookeville; Lex Dyer, Cookeville; L. D. J. Ensor, Cookeville; L. M. Freeman, Granville; W. A. Howard, Cookeville; S. A. Johnson, Monterey; R. H. Millis, Cookeville; J. B. S. Martin, Cookeville; H. C. Martin, Cookeville; J. T. Moore, Algood; C. P. Martin, Cookeville; W. C. Officer, Monterey; Z. L. Shipley, Cookeville; J. R. Storie, Cookeville; W. T. Sewell, Baxter; J. A. Trapp, Cookeville.

Rhea County.—W. P. Allen, Dayton; J. M. Clark, Spring City; J. R. Gillespie, Dayton; G. E. Johnson, Evansville; W. P. McDonald, Spring City; W. F. Thomison, Dayton.

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BOOK REVIEWS.

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THE DISPLACED UTERUS.*

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bilt School of Medicine,
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Three years ago a paper was read before this Association which purported to be a study of the cause of backward and downward displacements of the uterus. The angle of approach was from an anatomical basis, inasmuch as the problem seemed to be one of mechanics, with the anatomical parts as the chief factor. Intra-abdominal pressure, the influence of atmospheric pressure and the state of the vagina, that is, whether the vagina was torn open or whether it was normally a closed passage, in so far as the influence of atmospheric pressure was concerned, were considered unimportant. A review of a number of the more commonly used text-books revealed the fact that there was not only a lack of unanimity of opinion by the various authors, but none seemed to have any clear conception of just what constituted the supports of the uterus. Each description seemed to be a combination of meaningless terms and hackneyed expressions copied from generation to generation.

Whether right or wrong, this study has made it plain to me that in considering the displacements of the uterus two fundamental principles must be weighed: First, the factors underlying the causation of the various flexions and versions, together with the

degrees of descensus that do not materially affect the position of the cervix uteri; second, the factors underlying the causation of descensus which do affect the position of the cervix uteri to a major degree, resulting in prolapse, procidentia and the accompanying cystocele and the rarer rectocele.

Dismissing ante-flexion and ante-version as not pathologic, but rather as the normal attitude and position of the normal uterus, and the lateral versions and flexions as due almost entirely to factors which may be considered extrinsic to the uterus and its appendages, the subject resolves itself into the matter of retroversion, retroflexion and the descensus of the degree not materially affecting the position of the cervix uteri. These latter conditions are due entirely to lack of proper activity on the part of the ligaments proper, so called, of the uterus itself, viz.: round, broad and utero-sacral.

The problem of descensus to a degree affecting the position of the cervix, which is a part of and leads to prolapse and procidentia, involves all the factors which lead to retroversion and retroflexion not only, but to the integrity of the essential supports of the uterus. By essential supports of the uterus is meant not the muscles of the perineum, the most prominent of which is the levator ani, and what is commonly known as the pelvic floor, nor the triangular ligament which intervenes between the two levatores ani in the sub-pubic angle. Neither is it meant the anal fascia underneath the levatores ani nor the pelvic fascia above these muscles. **The essential support of the uterus is a collection of smooth muscle and connective tissue lying between the pelvic fascia and the pelvic peri-**

*Read at annual meeting of the Tennessee State Medical Association at Chattanooga, April, 1920.

toneum, extending up into the folds of the base of the broad ligament to a point at the level of the entrance of the uterine vessels at about the level of the internal os. This collection of smooth muscle and connective tissue is attached laterally to the bony pelvis and anteriorly to the posterior inferior surface of the os pubes and its descending rami.

To demonstrate the truth of the above statements I would call attention to two facts that may be observed clinically. First, in a case of simple retroversion, when the uterus is replaced to its normal position by bimanual manipulation, it will be noted that the uterus rotates around an axis which is at right angles to the long axis of the uterus and is at the level of the internal os. Second, in performing a panhysterectomy the only difficult part of the operation, if, indeed, it may be called difficult, is the dissection of the uterus in the region of the upper part of the cervix before the vagina is opened. Who, may I ask, has ever cut the levator ani muscle in performing a panhysterectomy?

It will be noted that I have distinguished between the degrees of descensus—viz., that which does not materially affect the position of the cervix, which more properly perhaps should be termed retrocession, and that which does affect the position of the cervix. The first of these conditions is what is seen in an individual that shows signs of general ptosis. The uterus, upon opening the abdomen, may be either anteфлекed or retroфлекed, but occupies a level distinctly low in the pelvis. Upon grasping the uterus with a volsellum it may often be raised entirely out of the abdomen; it is freely movable in every direction save one, and the impression is gained of an entire loss of tone, with marked relaxation of the fibrous and muscular supports. The one direction in which this otherwise mobile type of uterus is limited is that of the long axis of the vagina. Any ordinary amount of effort to dislodge the uterus in the direction of the vaginal introitus is not successful. It is prevented by the action of that layer of unstriped muscles and connective tissue alluded to above and termed the essential support of the uterus. However, if by congenital malformation or trauma subsequently, the most common of which is child-birth, the

essential support is damaged, the uterus may descend in the direction of the axis of the vagina and the condition of descensus, prolapse, or procidentia may supervene, the various names being indicative of degree only.

In the light of the foregoing etiology and pathology it will be seen that the condition of the muscles of the perineum, the so-called pelvic floor, play no role whatsoever in the cause of these conditions; nor will the repair of any defects in the perineal muscles of their respective fasciae be of the slightest benefit in their correction. In so far as the conditions of retroflexion, retroversion and retrocession are concerned, it is a matter of the ligaments proper of the uterus—the round, utero-sacral and broad. Descensus, prolapse and procidentia involve the proper ligaments of the uterus also, but the deciding factor in their causation is the integrity of the essential support. In truth, these latter conditions are herniae of the uterus through this layer of connective tissue and involuntary muscle.

In the contemplation of surgical measures designed to restore the displaced uterus to its normal position, three things should be considered: First, that perineorrhaphy as usually practiced is of no avail; second, retroversion is a problem of shortening of the ligaments proper; and third, prolapse involves the question of curing a hernia.

It has been estimated, and I believe conservatively, that twenty-five per cent of normal women have symptomless retroversions. Furthermore, I am not aware of any clear-cut, definite symptomatology to which these deformities give rise. Reflex phenomena have been ascribed to displacements of the uterus since the time of Aesculapius. He attributed globus hystericus to the lodgment of the wandering uterus in the throat. The pioneers in modern operative gynecology, Emmett, Skene, Byford and others, laid great stress on the possibility of tears and displacements as causes of reflex phenomena, believing neuroses, epilepsy and insanities to be due to them. The modern gynecologist refers these cases to the neurologist and more, the psychoneurotic can be much more effectively cured of the alleged reflex phenomena by the neu-

rologist than by any method of re-position of the displaced uterus by the surgeon.

Sacral backache is almost always due to orthopedic conditions. Even when there is definite pelvic pathology with inguinal pain together with sacral backache, the latter is often a static sacro-iliac strain. The low central sacral pain described by Graves (*Text-book of Gynecology*) as due to pressure of a retroverted uterus on the sacrum, I have not observed to be sufficiently constant to establish a definite causal relationship between them. The same may be said for leucorrhea and menstrual disturbances. It is my belief, therefore, that only a very small percentage of these defects demand surgical intervention, especially in view of the fact that the condition requiring the operation has of itself no mortality.

The operative procedures for the correction of retroflexion, retroversion and retrocession have been directed mainly to shortening of the round ligament and, to a much lesser extent, the shortening of the utero-sacral ligaments. The operations for shortening of the round ligaments may be grouped under the following six heads, according to the avenue of attack: (1) Inguinal, (2) vaginal, (3) intra-abdominal folding, (4) fixation to the anterior surface of the uterus, (5) fixation to the posterior surface of the uterus, (6) fixation to the anterior abdominal wall. From a collective review by Chalafant (*S. G. O.*, November, 1916, Vol. 23, p. 433) I have tabulated seventy different types of operations on the round ligament alone. Obviously it would be futile to attempt to discuss them. The fundamental principle to be observed to make for the success of any operation on the round ligament would be the utilization of a design that ultimately depends on connective tissue rather than muscle for support. Nowhere in the body is muscle called upon for continuous action, and no exception should be made here. The success of round ligament shortening is perhaps due to the fusion of apposed peritoneal layers rather than the shortening of the muscle proper of the ligament.

The problem of the cure of descensus, prolapse and procidentia immediately brings to our consideration whether the patient is in

the child-bearing period and, if so, whether that function shall be preserved or not. The types of operations which offer the highest percentage of cures necessarily contemplate the sterilization of the patient either by the very nature of the operation itself (e. g., vaginal hysterectomy with imbrication of the broad ligaments, or supra-vaginal hysterectomy with suture of the cervical stump to the abdominal wall); or the operation may have such dire results on the mother should pregnancy supervene that sterilization is desirable (e. g., the Schauta interposition operation). Rarely will operations on the ligaments proper of the uterus effect a cure in prolapse or procidentia. Happily, most of these conditions occur after the menopause, and we are not concerned with the preservation of the child-bearing function.

DISCUSSION.

Dr. H. G. Tucker, Nashville: It is refreshing to hear a gynecologist admit that anything but a gynecologic condition can produce backache. I have had the good fortune to see in my hospital practice a good many cases of backache, and I have come to the conclusion that most all backaches are due to some orthopedic condition, either flat feet or some other orthopedic condition. No man ever made a vaginal examination without thinking of some gynecologic condition as the cause of backache, and I doubt if the majority of the examiners ever think of flat feet as the direct cause of the trouble which they find, especially of the backache. So I take it that the trouble we are having today is that they cannot see beyond the exterior symptoms. Where the condition is present, that is, the backache, if he is an orthopedist he comes to the conclusion that the trouble must be orthopedic. I agree with Dr. Gallagher that a large percentage of backaches in women today are due more often to an orthopedic condition, to flat feet, or some sacral trouble, than to anything else. The condition of retroversion and retroflexion has not been dealt with successfully. Too many women are operated upon for retroflexion or retroversion. In a large percentage of the cases the women do not know that the trouble is with their feet—do not know that they have flat feet. I think it is a great mistake for the examining doctor to tell a woman that she has retroversion, that she has neurosis from retroversion, for she may develop a neurosis because the doctor told her about it. I am sure that if Dr. J. Marion Sims and some of the older surgeons could have heard Dr. Gallagher's presentation of this subject that

they would have turned over in their graves, and some of the disciples of Dr. Sims would have held up their hands in holy horror. Now, as to the essential support of the uterus: I say let each man decide for himself as to that. I am prone to believe all that the doctor says. I still believe a little in the support of the levator ani in the support that is given by the muscles. The levator ani may not be an essential support. I cannot but believe that it is a very highly contributory support.

Dr. William Sheddan, Columbia: I remarked to my friend, Dr. McCabe, when Dr. Gallagher commenced to read his paper, "I wonder what he can state." I thought that about everything that could be said had been said upon this subject. I have been listening to papers on this subject for thirty-three years. I have heard surgeons describe different operations for the relief of this condition, but I want to say that Dr. Gallagher has said more today and told more truths in fewer words than I have ever heard put into the subject before.

Dr. William T. Black, Memphis: Mr. Chairman, like Dr. Sheddan, I thought that nearly all had been said about retrodisplacement that could be said, but the fact that we are constantly talking about this subject, there must yet be lots to learn. Dr. Gallagher's paper is very unique nevertheless, one in which there is a great deal of truth. Regarding the etiology of retrodisplacements, I agree with Dr. Gallagher's theory to a great extent, because the principal source holding the uterus in position is various attachments of the ligaments to the uterus, blood vessels, lymphatics and connecting tissue, especially where these structures are attached to that part of the uterus where the body and cervix join. Proper relation of other intrapelvic organs to the uterus, plus intraabdominal pressure against the uterus are of importance. We often see hernias of the bladder and cul de sac with an intact perineum. Again we often see cases with complete laceration of the perineum with the uterus in a normal position; however, I believe in most of these cases, where we have the latter condition, there is more a matter of time than anything else; in other words, we often see the latter condition some time after laceration, but if we examine the same patient a few years later we find that the retrodisplacement with some prolapse has occurred. I therefore believe that the pelvic structures attached to the uterus are of more importance in maintaining the uterus in its normal position, but I also believe that the condition of the perineum has a great deal to do with it. When the perineum is lacerated, the vagina no longer remains a closed canal, the air rushes in and pressure is exerted in an abnormal direction. We also have a marked rectocele, which changes the anatomy of these structures,

which in turn causes changes to take place in other intrapelvic organs. The uterus is pulled somewhat down and back, the small intestines slip anterior to the body of the uterus, intraabdominal pressure continues to cause the uterus to become further displaced backwards.

As the speaker has said, about 33 per cent of women have retrodisplacement, and the majority of primary displacements require no treatment, nevertheless there are a great many secondary displacements and other pathological conditions present which produce decided symptoms and must be corrected for the patient's comfort. All lacerations of the perineum should be repaired. A great many of these retrodisplacements are really retrocession of the uterus, which are usually congenital in type. A great many of the later cases may have the uterus anteverted, although the uterus is retrocessed. These usually have a small body, and in a great many instances have a poor development of the other sexual organs, and probably the only symptom produced is sterility and other improper developments, and probably the only treatment indicated would be the giving of ovarian secretions.

Dr. H. L. Fancher, Chattanooga: The question that Dr. Gallagher brought out in regard to the essential support of the uterus seems to me to be a little stressed. It is true that we have all characters of displacement of the uterus, some more definite than others. In some we have tears and lacerations, yet that does not necessarily amount to an essential pathology. A simple uterine displacement does not always mean pathology. I think it is very well settled by most gynecologists and abdominal surgeons that the tissues around the internal os play the leading part in the support of the uterus. I think the pelvic connective tissue, which is an extension of the abdominal connective tissue, is the principal support of the uterus and its appendages. When we come to talk about the character of these displacements, we must not forget that some are congenital, some are caused by child-birth, some by disease, and some by meddlesome instrumentation. I doubt if any are caused by body posture.

We know the fibers of the fascia around the internal os may be rearranged or disarranged without a definite tear during delivery before the child can get through. There is nothing that so tends to disarrange the pelvic circulatory condition and cause a rearrangement of the blood vessels and nerves as acquired displacements. It is this condition of static or chronic enlargement of the pelvic organs, with or without varicocele of vessels of the broad ligaments that causes the heavy, dragging sensations of the sacral region and lower abdomen, more than any condition of sacro-iliac strain due to faulty posture.

It requires surgery to cure these cases, and many will not be relieved until the uterus is re-

moved with necessary attention to the varicocele of the pan-piniform plexus. I appreciate the essayist's original work in this line, but I cannot accept the idea of a single essential support. There exists a pathology-complex just as there is a symptom-complex in these cases.

Dr. L. E. Burch, Nashville: Dr. Gallagher deserves a great deal of credit for the study and time that he has devoted to the subject of retrodisplacements. During the last three or four years he has brought out a good many original ideas. Whether they are correct or not, I am not prepared to say. I feel, however, that he should be commended and encouraged for doing original work and research. Retrodisplacement of the uterus is a condition that appeals to every surgeon and general practitioner. It is a condition that is met with almost daily at the bedside and in the office. A careful study of retrodisplacements in the various hospitals and clinics of the country show that twenty-five per cent of the women that have retrodisplacement present no symptoms—that is, no definite symptoms. Retrodisplacements are frequently found associated with other conditions, and in this class of cases it is not the retrodisplacement that is causing the trouble, but the pathology elsewhere. A good illustration of this is a retrodisplacement associated with general abdominal ptosis. In this class of cases it is unwise to call the patient's attention to any one organ, for the reason that they are quite susceptible to mental suggestion and are usually in a nervous, run-down condition. The treatment should be general, associated with proper abdominal supports.

Retrodisplacements are frequently found associated with diseased tubes or ovaries. It is not the displacement that is producing the symptoms, but the pathology in the appendages and the adhesions that have been produced.

Retrodisplacements frequently follow childbirth, due to laceration of the perineum, and cervix. In this class of cases the woman has been perfectly healthy and normal until delivery, and from that time on her trouble begins. Usually a cystocele and rectocele are present, and the vagina instead of being a closed canal, is a wide open canal. In this variety it is necessary to repair the pelvic floor, and at the same time reduce the retro-displacement and hold it in place either by operative measures or by a mechanical device, such as a pessary.

The most puzzling variety of retrodisplacement is found in those women who have never had children or pelvic infection and in which the uterus is not bound down. There is one certain and reliable test, and that is to replace the uterus and hold it in place by means of a pessary. If the symptoms disappear, then the cause is easily seen. If the symptoms do not disappear, it is obvious that the retro-displacement is not the etiological

factor. The uterus is a movable organ, and any fixed position of the uterus is abnormal. Therefore, any retrodisplacement that is bound down should be looked on as pathological.

ENCEPHALITIS LETHARGICA.

By E. R. Zemp, B. S., M. D.,
Knoxville.

As a puzzling interrogation, "Who hit Billy Patterson?" fades away into the kindergarten of unanswered questions when compared to finding the answer to "Who discovered encephalitis lethargica?" From all evidence at hand it seems that v. Economo, of Vienna, is the guilty culprit, for he at least discovered the misnomer under which this disorder prevails. I say misnomer, because the name conveys a wrong idea as to the clinical symptoms and the pathology of the disease. Historical sleuths, however, have traced the epidemic occurrence of lethargica states back to Hippocrates, which helps to prove the oft repeated statement that there is nothing new under the sun.

That v. Economo sacrificed accuracy for euphony when he called his syndrome encephalitis lethargica cannot be doubted, for as Bassoe facetiously remarks: "It's not the encephalitis that is lethargic, but the patient," and I cannot resist the temptation to add that in making the diagnosis, many times the physician seems to be in a complete state of lethargy. Bassoe again demonstrates his ability as a humorist when he declares that *nona* is a good name for v. Economo's syndrome, because it is short, meaningless and noncommittal. But who wants to have *nona* when encephalitis lethargica is so plentiful? And what doctor would stand a chance in the advertising department curing *nona*, when other doctors all around him are curing encephalitis lethargica? The resultant rose by any other name would not smell as sweet. So all things being considered, we will stick to the misnomer.

The present epidemic, it seems, started in the neighborhood of Vienna during the latter part of 1917 and in a comparatively short time spread over the entire world. It reached France and England early in 1918 and the

United States about a year later. According to Flexner, this epidemic affection has never before occurred in America. Starting in the crowded cities of the East, it has rapidly spread over the entire country, as witnessed by the numerous cases, both real and imaginary, that are being reported. It is of psychological interest to note that with the appearance of all new diseases the diagnostic acumen of many physicians is wonderfully increased. This is excusable when we remember that there are so many people who prefer the preaching of Billy Sunday to that of Christ.

The relation of encephalitis lethargica to influenza has been the subject of much discussion. It has followed in the wake of influenza at times, but probably bears no nearer relation than the doormat bears to the door. It certainly cannot be regarded as simply a sequelae of influenza, for in the epidemic occurring in Austria during the year 1916 the epidemic of influenza had not appeared. There is also a marked numerical discrepancy between the cases of influenza and encephalitis lethargica, and Skversky calls attention to the fact that while the American overseas forces were not spared by the scourge of influenza, the cases of encephalitis lethargica were very few. Undoubtedly there is a form of encephalitis that is closely associated with influenza, but it is not the lethargic disease we are now considering.

What is encephalitis lethargica? I believe the best answer given to this question is by Sainton. He defines this disease as "a toxic, infectious epidemic syndrome, characterized clinically by lethargy, ocular palsies and a febrile state; and anatomically by a more or less diffuse encephalitis, most marked in the gray matter of the mid-brain." As a clear and concise statement of the cardinal facts concerning this disease it cannot be improved upon and it lacks only the etiological factor to make it complete. So far this factor has not been discovered. Various experiments have been carried out in order to determine the bacteriological cause, but with no positive results. The disease has been transmitted to animals by inoculating with diseased tissue from other cases, but no specific organism has been found. As a contributing cause influ-

enza stands high. Any depressing influence paves the way, but that the disease is caused by some specific germ is very probable, as previous epidemics of influenza have not been followed nor complicated by it. Jelliffe truly states that a variety of causes, through action on certain regions of the anatomical pathways of the brain, can produce an encephalitis almost identical with v. Economo's syndrome, and mentions the noxa of pneumonia, influenza, poliomyelitis, measles, syphilis, alcohol, food and other toxins as possessing this power, but again it must be remembered that the resultant clinical picture is not the lethargic type of encephalitis.

Lethargic encephalitis is infectious and communicable. This statement holds good in spite of the fact that only single cases are generally found in families. Two cases in the same family have been noted, and the London Local Government Board has reported an institutional outbreak in which among twenty-one inmates of a girls' home twelve cases arose, with five deaths. It is highly probable that many cases of the abortive type escape unnoticed.

I shall speak but briefly upon the pathology of this disease. Although different writers have disagreed upon the etiology, they have all agreed with a surprising concordance upon its pathology. The histological changes have been clearly and tersely stated by Flexner: The lesions may be intensive and profound. They affect especially the gray matter at the base of the brain. While any part of the gray matter may be involved, the structures particularly affected are those about the third ventricle, the aqueduct of Sylvius, the lateral ventricle and optic thalamus, and the pons and medulla. The involvement of the spinal cord is variable. The lesions consist of cellular accretions around the blood vessels, cellular infiltrations in the nerve tissues, small hemorrhages, and outpouring of plasma or lymph into the tissue interstices. The cellular accumulations and invasions are chiefly mononuclear in nature. The lesions occur in nodular and in diffuse forms. The paralyses arise from the cellular and other invasions of the nuclei of the corresponding nerves.

The Symptomatology.—In the vast major-

ity of cases the onset is described as sudden, but William House believes there are two types of cases—one in which the onset is sudden, and another in which the onset is gradual. This probably explains the confusion that arises in the mind of the uninitiated when trying to find out from the literature on the subject whether the onset of this disease is sudden or slow. Writers differ on this point, but v. Economo, who, as I have said before, started the trouble, says that clinically the onset is sudden. In Bassoe's cases the onset was gradual. Be this as it may, sooner or later there develop certain initial symptoms that are common to all infectious diseases, namely, chills, lassitude, general malaise, headache and general pains, anorexia and nausea. Fever is present in varying degrees, ordinarily running from 101 to 102, while in severe cases it may reach as high as 104.

Most of the patients give a history of having a catarrhal condition of the upper respiratory tract before the true symptoms are manifest. In spite of this they feel unusually well and cheerful, but, sooner or later, insomnia sets in and the euphoria may pass into hypomania with illusions and hallucinations. It is during this stage that choreiform twitches are observed. Another early symptom is pain. It is sharp and lancinating, following the course of some peripheral nerve. It is well to remember that many of these patients suffer from retention of urine and must be catheterized.

As the disease progresses there develop certain characteristic symptoms. The most prominent of these are lethargy, blurred vision, diplopia and ptosis. Other symptoms that may be present are vertigo, tinnitus, muscular weakness, tremors, twitching, ataxia, rigidities, mental irritability or depression, difficulty in swallowing and in articulation. The outstanding features of this disease, however, are the lethargy and the ocular palsies.

The degree of lethargy varies widely. It may be that the patient simply appears dazed or stupid. He may fall asleep while at work, or simply be hard to wake in the morning, or it may deepen into coma from which it is impossible to arouse him. The majority of patients just doze. They are easily awak-

ened and appear to be clear-minded, are not irritable, and have no speech defects. Some writers declare that the deep comatose states do not belong to this syndrome. Certain it is that the milder grades of sleepiness are much more frequently seen.

The cause of lethargy is not determined, but it is probably mechanical. The patient sleeps because he is cut off from the outside world and exists in a wilderness of quietude, no sensory stimuli reaching the brain on account of the lesion in the thalamus. The obstruction is not complete, however, for the patient can be aroused by extra efforts. Just as the lethargy can be accounted for by lesions in the thalamus, so can the various paralyses be explained by the cellular and other invasions of the nuclei of the corresponding nerves.

Besides ptosis and diplopia there may be paralysis of the facial muscles and rarely the extremities may be involved. But far more common is rigidity. This may be confined to the neck or extend to the extremities. It is not marked as a rule and easily overcome. House calls it a "waxy flexibility."

The duration of the coma is from a few days to months. Recovery has taken place after four months. During this time the patient's face assumes a mask-like expression and there is peculiar puckering of the mouth. Apparently he sleeps quietly, but Bassoe has called attention to the fact that underlying this tranquil picture there may be a persistent insomnia present, while in other cases delirium and even mania may develop.

One of the most striking features of this disease is the ocular palsies. They may precede the lethargic state and the patient may first consult the physician for his eye trouble. Cases have been reported in which the sleepiness did not appear until a week or ten days after the ocular manifestations. While diplopia and ptosis are the two most frequent symptoms, there may be others. Accommodation defects occur and the pupillary reflexes may be involved.

The diagnosis of encephalitis lethargica is not easy, although some writers would lead us to believe so. In a disease with such a varied and complex symptomatology many cases will be wrongly diagnosed. The lighter

ones will be overlooked and other comatose conditions will be included under this syndrome. Of course, when the disease appears and progresses in a purely classical manner there should not be much difficulty in diagnosing it, but, after reading the reports of many cases by different writers, one's mind is staggered by the numerous possible disguises in which this disease may present itself. The entire absence, or very moderate development, of meningeal symptoms, such as rigidity of the neck, the Kernig's sign, the tache cerebrale, suggests at once encephalitis. Lethargy itself may be caused by many other conditions. Syphilis, brain tumor, apoplexy, uremia, meningitis and severe toxemias may each and all cause lethargy. But in all of these the peculiar syndrome of v. Economo is rarely present. Of course, the examination of the urine and the spinal fluid will clear up our diagnosis in some of these instantly, but the laboratory gives us but little help in encephalitis lethargica. The blood shows a moderate leucocytosis. The spinal fluid is under slight pressure and the cell count is only slightly increased. While both the polynuclear and mononuclear cells are increased, the mononuclear predominate. The increase is slight. Many cases show only a count of ten or twelve. In Bassoe's cases the highest count was 26. William House reports one case in which the count reached 105. Flexner says the count rarely reaches 100.

They all agree that the globulin may be slightly increased. Personally, I would throw out as not being encephalitis lethargica all cases in which the cell count was high; in which the spinal fluid was under high pressure; and those cases in which the coma is so deep the patient cannot be aroused. Many of these are meningeal conditions complicating influenza.

The prognosis is hopeful, but should be guarded. The mortality varies from 5 to 40 per cent. The treatment is entirely symptomatic, and sometimes foolhardy.

Lumbar puncture has been discarded by Sachs, it being harmful.

THE TREATMENT OF EMPYEMA.

By Wm. C. Dixon, M. D., F. A. C. S.,
Nashville.

The voluminous literature dealing with empyema published in the recent past serves to show that few surgical problems arising from the war have stimulated more interest or study than has this one. The large number of cases occurring in the army, the tremendous mortality, the prolonged convalescence, the crippling sequelae have all served to focus attention on this condition. The result has been a flood of literature, numerous series of case reports and recommendations of various forms of treatment. Most of the methods of treatment advocated as new are shown, upon investigation, to be methods tried many years ago, and after trial discarded, only to have been revived recently, in an earnest effort to improve results.

Prior to the war the treatment of empyema was, to a large degree, standardized; rib resection, with tube drainage, was the usual routine. Cases with persistent fistulae, following this treatment, were usually subjected to operations to collapse the chest wall and obliterate the cavity, of which the Schede or Estlander were the general type, or an effort was made to free the lung from its thickened visceral pleura so that it could expand and thus obliterate the cavity. The Delorme-Fowler and the Lillienthal operation are types of the latter procedure.

Although the treatment of this condition prior to the war was to a certain extent settled and apparently satisfactory, it carried with it a very definite mortality. Wilensky (1), analyzing the cases of Mt. Sinai Hospital from 1903 to 1913, 258 in number, reports a mortality of 23 per cent. The cures resulting from the primary operation only amounted to 57 per cent, leaving 20 per cent not cured by the primary operation, or 43 per cent with unsatisfactory results. Patients not cured by the primary operation were usually subjected to operation one or more times in an effort to secure closure of a persistent sinus and the obliteration of the pleural cavity.

All operations of this type, enumerated

above, are major procedures, with considerable mortality and a fair number of unsatisfactory results. Even cases classed as successful, that is, those showing closure of the sinus and cessation of the drainage, accomplish this result at the cost of loss of substance and deformity of the chest wall, sometimes limitation of shoulder motion, and always impairment of the lung on the affected side. These latter objections apply less to the DeLorme type of operation than to others, but even at best they are objectionable. Indeed, it is surprising, in view of the results obtained, that this subject had not sooner attracted the attention of the profession. The necessary stimulus was supplied by the large number of cases occurring in a short time among the mobilized troops.

Early experience with these cases impressed on all observers anew an old truth long known with reference to infection in other parts of the body, but apparently not applied to infections of the pleura, namely, that the type and virulence of the infecting organism played a large part in the course and termination of any case. Empyema following lobar pneumonia, in which the pneumococcus soon died out, was the criterion by which most physicians judged this disease. The occurrence of the streptococcus as an etiological factor brought new elements into the problem.

The earliest indication for the removal of fluid from the pleura in any case of pneumonia is for the relief of embarrassed breathing. This interference with respiration may occur early in the infection, and may seriously menace the patient. This has been particularly noticed in streptococcus pleural infections, and in these at this stage the fluid is serous. Aspiration by a method which does not allow air to enter the pleura should be practiced as often as the fluid reaccumulates sufficiently to embarrass the breathing.

The Empyema Commission (2) in their report give three reasons why operation is contra-indicated at this stage.

1. The danger of collapse of the lung from pneumothorax, before any limiting adhesions are formed.

2. The danger of producing a blood stream infection, by absorption from the surfaces of

a fresh wound. In support of this view they report two cases with negative blood cultures before operation, while cultures taken twenty-four hours after operation were positive.

3. The shock and nervous strain, though slight, should be avoided.

In their experience, aspirations were necessary at two to four day intervals, rarely necessary at one day intervals, and on the average the fluid changed from serofibrinous to definite pus in a period of from two to three weeks.

While these conclusions apply to streptococcus infections, they are in many respects analogous to clinical observation in cases of empyema following lobar pneumonia. The empyema when discovered is usually post-pneumonic. The patient has passed the crisis or the temperature has declined by lysis, the toxemia is lessened, and the acute symptoms due to the pneumonia, as a rule, are over. This fact, as well as the difference in the virulence of the infecting organism, may account for the better results in cases following lobar pneumonia.

After the fluid is definitely purulent, operation is indicated for its removal. Rib resection, with tube drainage, is the commonest procedure and is no doubt the best. However, many observers advocate intercostal incision or the introduction of a tube through a trocar, together with some form of continuous suction to evacuate the pus and to aid in re-expansion of the lung. Many ingenious devices have been described to accomplish this purpose. This method of treatment depends on an air-tight contact between the chest wall and the drainage tube, which, in practice, is very difficult to maintain due to movements of the patients and to tissue atrophy from pressure of the tube. The apparatus required is also more or less complicated. Its principal theoretical advantage, namely, prevention of collapse of the lung, is minimized by the fact that in every case where the process has advanced to the formation of pus, there are adhesions between the pleural layers, which act to prevent complete collapse of the lung.

Graham and Bell (3) have shown further that unless the inflow of air through the open-

ing in the chest wall in inspiration is equal to the amount of air going through the glottis collapse will not occur. They have demonstrated experimentally that an opening 2 by 4.1 inches can be borne without complete collapse of the lung. This is considerably larger than the opening made by rib resection, sufficient to give good drainage. They also emphasize the point that the idea ordinarily expressed in discussions of this subject that the lung on the diseased side collapses while the lung on the sound side remains normal, and assumes all the burden of respiration, is erroneous. This view presupposes that the mediastinal structures act as a rigid barrier dividing the chest cavity into two parts. They contend that the chest cavity must be thought of as one cavity, not two, and that in the absence of limiting pleural adhesions an opening in the chest wall of one side produces nearly as much collapse in the lung of the opposite side as in the lung on that side. It would seem, then, that a fair-sized opening with efficient tube drainage would offset the theoretical advantage of continuous suction to prevent collapse.

Hartwell (4), referring to continuous suction applied through a small opening, concludes his article as follows: "Reading of the history of empyema during the past five decades shows that from time to time there have arisen advocates of the so-called less radical forms of treatment who have enjoyed a short period of success. Failure, however, always succeeded this period. Gradually, through the constant teaching of thinking masters, this disease has been recently handled along sound lines of therapeutic teaching founded on a full comprehension of its pathology. Any falling away from this will only result in a period of again learning old lessons with its resultant suffering.

"Our argument may be summed up in the statement that no form of treatment for empyema which disregards the thorough drainage of the chest cavity by a rib resection and the gradual re-expansion of the lung by respiratory efforts, meets the requirements. Other means will cure a certain number of cases, particularly in such times as the disease occurs in abortive forms, which has been done during the past two years."

The addition to the treatment of irrigation of the cavity with Dakin's solution has no doubt earned a permanent place in the handling of this disease. Its properties of destroying bacteria, of attacking necrotic tissue, pus and fibrinous exudates gives it a peculiarly appropriate field of action where, as in the pleura, these conditions must be met in a cavity with rigid walls and a comparatively small drainage opening. It facilitates drainage by thinning the discharge and, in cases with a bad odor, it usually relieves this promptly. Moschovitz (5), after an extended experience with Dakin's solution, concludes that "the Carrel-Dakin treatment has proved of superlative value in the post operative treatment of empyema, and should be instituted in every case. There are no contraindications to its use."

Tinker and Wattenberg (6) have reported fifty-nine cases of chronic empyema cavities with sinuses treated with Dakin's solution. These patients had been suppurating for an average time of four months and were healed in an average time of thirty-four days after the treatment was started. These cases are the type formerly submitted to the various operations enumerated above, such as the Estlander or DeLorme, in an effort to close the sinus and obliterate the pleural cavity.

Moschovitz refers to the fact that since the routine use of Dakin's fluid he has had to resort to plastic operations on the chest wall or pleura with increasing infrequency. It would seem that Dakin's solution has earned its place in the treatment of empyema, as it has in the treatment of infected wounds. Its use is not attended with any danger. The only exception is in cases of pleuro-pulmonary fistula, where the entrance of the fluid into the lung produces violent coughing. Where this condition is present it should be used cautiously but is not contraindicated.

Not every solution containing chlorine is Dakin's solution, and unless one is using a solution properly made and titrated at frequent intervals to see that it retains its proper chlorine content and alkalinity, its failures should not be charged to Dakin's solution. It is equally important to apply the solution according to the general principles laid down

by Carrel, or else the full benefits of the method cannot be expected.

The Empyema Commission has stressed the importance of a diet of high caloric value in this disease. Due to the nitrogen waste, it is essential that these patients receive a diet which will replace this waste, and at the same time build up the patient. They recommend a diet furnishing 3,000 or 3,500 calories a day.

The value of exercise in re-expanding the lung is well established. As soon as able, the patient should be encouraged to practice forced expiration to aid in expanding the lung and obliterating the pleural cavity. For this purpose the Wolff bottles may be used or, what is just as efficacious, an automobile tube with the valve removed may be blown up as tight as possible several times a day. As soon as the patient is out of bed, exercise of the type of the army setting up exercises can be employed to advantage to increase metabolism, to restore to use the chest and shoulder muscles and to aid in re-expansion of the lung.

To sum up, an outline of the treatment of empyema is as follows:

Early aspiration for dyspnea and cyanosis.

Rib resection and tube drainage with Carrel-Dakin treatment when the exudate is definitely purulent.

A diet rich in calories.

Breathing exercises and setting up exercises to aid re-expansion.

These measures conscientiously applied will undoubtedly give a higher percentage of primary cures and reduce the number of patients submitted to secondary operation in an effort to close pleural sinuses.

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PREVENTIVE MEDICINE.*

By J. G. Eblen, M. D.,
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This is such a broad subject that I hesitated to attempt to bring this subject before the East Tennessee Medical Association, and I will only attempt to touch some of the high places.

Pasteur is quoted as saying: "It is within the power of man to rid himself of every parasitic disease."

It was once believed that human mortality followed an "inexorable law." Facts however, show that mortality varies in different places and is decreasing as hygiene comes into use. We have learned that the length of life depends not only on physical environment, but on social environment, and most of all on human vitality. The length of life in Sweden and Denmark is over fifty years; in the United States and England, about forty-five years; in India, less than twenty-five years.

The last decade has seen great changes in our conceptions of life and its social reactions. Intercourse between nations' business and professional relations, individual and community obligations, have all undergone radical changes and are still in a condition of unrest. None knows what the morrow will bring forth. Each is a living day at a time. In no occupation or profession is this change becoming more apparent than among physicians and their related professional and social activities. Struggle as we will to maintain the noble conception of professional ethics and community relations, indications are not lacking that new opportunities are bringing into play new responsibilities, and we must so order our professional lives as to meet these opportunities and responsibilities with a determination to make

*Read at semiannual meeting of East Tennessee Medical Association at Greeneville, September, 1920.

them serve the best interests of the individual and the community.

Medical practice of the past has been largely that of individual endeavor without consideration of community needs. All physicians have given without stint of their time and knowledge to social work by serving the needy and poor without thought of compensation. But the solution of the problem of how best to serve the public while serving their own interest should be seriously considered. The individual physician, although realizing his community relations, has followed his desires, his thoughts and his actions without considering their effect on the public. Perhaps many physicians have never thought to so conduct their individual lives that our actions may be reflected in community betterment. We hear much these days about health centers, preventive medicine, infant welfare, child hygiene, physical education in our schools, free clinics, and so on through a long list of activities, having for their object the betterment of the health of the individual and the community. .

Have we ever stopped to think that the forces behind these movements, which to a large extent must depend on the co-operation of the medical profession to be carried to a successful conclusion? Has the time not come when the physician must assert himself in these movements and lay aside, to a certain extent, his individual interest, and prepare to render his share of service in these forward-looking changes which are going on all about us?

Our state, which is composed of communities, has the right to expect certain service from physicians, owing to the fact that they receive special distinction in being licensed by the state to practice their profession. It may be said that they are already giving largely of their service to the state in the care of the unfortunate and sick. This is true, but only half true. They are applying remedial measures, but how about preventive measures? Are we studying the cause to find the cause, and having found it, are we indicating ways and means to prevent a recurrence of that and similar cases? Is it through fear of loss of personal gain that more preventive work is not done by physicians, or

is it rather due to the absorbing interest of the work in hand?

When modern industrial machinery was invented there was great opposition to its use, based on the plea that as one machine could do the work of several hands the opportunities for employment would be lessened to a marked degree. But instead of lessening the need for workers, the use for machinery caused such an expansion of factory work that more hands than ever were needed and, in addition, each worker could make a higher wage because he could turn out more work. Instead of lessening the work of the physician, the increased interest in community, home and personal hygiene will call for greater service on his part, although this service will doubtless need to be met by a different method, that of preventive medicine rather than by curative medicine. Possibly the old custom of paying a physician to keep his people well rather than to cure sickness will be practiced more and more. The problem is to lessen sickness and mortality by removing the cause, and strengthen the resistance by increasing the bodily and mental vigor of our people.

As this question of health betterment is a medical one, there are opportunities all along the line and in our daily work to exercise an influence which will be of invaluable use. The publications of the findings of our draft boards in the examinations of men for the army, has drawn attention to the great need of preventive medicine.

The use of violent drugs is fast going out of fashion. Large bottles of medicine are not found in the sick room as has been the case in the past. The recognition of the self-limiting character of most of the acute diseases sounded the death knell of the harsh drugging of the olden time. The number of medicines used by physicians is decreasing and will ultimately be reduced to a small fraction of the present pharmacopoeia. Many medicines, like quinine and mercury, will of course merit a continuance of use. Serum therapy, although in its infancy as to most diseases, has opened up a field of great promise. The profession is learning to appreciate hygienic measures more and more. The new treatment includes the use of air, light, water,

food, rest, massage, mechanical vibration, electricity, exercise and suggestion. These remedies have the great advantage of preventing as well as curing disease.

In proportion as prevention is more important than cure, the rapid advance in the knowledge and practice of preventive medicine will be of great value. The trend of preventive medicine is indicated in various ways; for instance, some physicians are now employed by families, schools, firms, associations, etc., for the purpose chiefly of preventing rather than curing disease. In some of the larger cities dentists are being employed by the month to attend to children's teeth. Employers are securing the services of physicians to care for the health and physical welfare of their employees. The modern fight against tuberculosis has led physicians to a larger use of fresh air in their practice. Its utility in all chronic ailments is being more and more recognized. It is now not unusual to find physicians advising their patients whether ill or well, to sleep out of doors. This is suggestive that man was originally an out-door animal.

Are we, as the medical profession of East Tennessee, doing our utmost at all times and on all occasions in our daily professional work to teach the people that there are many diseases that can be prevented, and that prevention is better than cure?

Typhoid fever, theoretically, at least, the most positively preventable of all communicable diseases, has long been a major cause of death in Tennessee. While it is most gratifying to note that the number of annual deaths from this disease is decreasing year by year, it is lamentable that the number is yet so large. The State Board of Health reported 683 deaths from typhoid fever in the year 1918, yet typhoid fever is a preventable disease. Is this the fault of our Governor, or our Congressmen, or the politicians or the ministry or the teaching profession, or is it the fault of the medical profession? In my humble opinion, if the health officers of each county in Tennessee and the health officers of each city and the smaller towns coupled with the medical profession should teach and preach typhoid vaccination day in and day out, in season and out of season, the

deaths from typhoid fever would be reduced to a far greater minimum than it now stands.

The State Board of Health reports in the year, 1918, 4,787 deaths of children less than one year of age, and in addition to this 2,112 still births. Why do so many die? There are many causes for infant mortality. Prominent among the causes, possibly, ignorance plays a very great part. Many young babies die because their mothers are ignorant concerning their own proper care before their babies are born, and ignorant concerning the care of their babies and themselves after the babies are born. A large number of babies die for lack of medical attention. So many people do not seem to appreciate just how delicate a young baby is and how quickly its balance may be destroyed and just how quickly a seemingly insignificant "upset" may turn into a very serious condition. A baby sick from any cause should have the care of a good physician. Whooping cough and measles are very fatal to young children because of the development of pneumonia in these diseases. Very young children are not prone to develop the ordinary infectious diseases, but the two above mentioned cause the death of many children. Every care should be taken to keep the babies away from all contagious diseases. Bad feeding is a major cause of death in infants. There is no food for the baby like mother's milk, but even the breast-fed child can be fed to death. There is nothing more important than that the baby's food itself should be clean and that it should be given the baby in a cleanly way. Poverty is one of the worst enemies of the baby, and yet it seems that the home of poverty is the home into which most babies are born.

The Metropolitan Life Insurance Company has statistics showing that child-bearing is more hazardous to women than mining coal or railway service. Whose work is it to teach the people how to take care of the babies and how to lessen the hazardousness of child birth in order to save many lives each year? Is it not the work of the medical profession, to take the lead and back up all forces that are available to help out in this work along the lines of preventive medicine?

There are thousands of people in East Tennessee that have not been vaccinated against smallpox because they have not had it preached and taught to them by their medical advisers. Yet smallpox is a disease dreaded by the people as they would dread a mad dog in their community.

Diseased tonsils and adenoids and defective teeth might well be called the enemies of school children, yet the human race is heir to them, and it is "up to" the medical profession to meet these conditions and these diseases and work along on lines of preventive medicine and render the very best of service that is in us.

It is not within the scope of this paper to take up venereal diseases and discuss them at length as to the methods of prevention, but the medical profession is well aware of the wonderful work done along these lines during the war, and great credit is due the army surgeons for the way in which these diseases were handled. But the state boards of health and health boards in general feel that the medical profession today is not doing what they could along these lines in the way of prevention.

The medical profession has and is yet doing a great deal in the way of prevention of pellagra. It seems that the mass of the people, though ignorant as they might be, soon caught the idea that pellagra was a disease due to errors of diet, and a hint by the medical man was sufficient to get folks to change their food and take up the idea of a balanced diet.

Diarrhea and dysentery are preventable diseases due largely to insanitary conditions, yet this is unknown to the masses of the people, and physicians should teach this in their daily work.

Last but not least, I hesitate to say that influenza is a preventable disease, and I will only quote a short article which appeared in the *Journal of the American Medical Association*:

"The epidemic of influenza in 1918 caught many states and health departments totally unprepared. As there were no adequate regulations aside from the powers of the boards of health for handling this disease, much emergency legislation ensued.

"It is generally realized that there is a wide difference of opinion and regulations in the various states and municipalities concerning this disease. In an endeavor to ascertain points for a model control of the subject, the state of Minnesota sent a questionnaire to state health officers in each state in the United States covering the general points of greatest importance.

"It was found that 97 per cent of forty states that replied have some method of reporting the disease. In 74 per cent to the local health officer and in 12 per cent to the state officer.

"There is quite a diversity in the rules regarding quarantining and placarding. Isolation or quarantine is maintained in twenty-four states, the time varying from two days after return to normal temperature to fourteen days after return to normal temperature. Influenza is placarded in fourteen states, not placarded in nineteen states.

"There is no definite ruling in many states regarding the policy of closing public places in epidemics. The tendency is for the state health officers to shift these responsibilities to the local health officers.

"An interesting point brought out in the questionnaire was, only one state in the union recommended the use of serum as a prophylactic measure against influenza. The above analysis is valuable as an indication of the necessity for greater knowledge of this disease, its etiology, mode of transmission, duration, etc., before much can be accomplished along the lines of prevention."

The work of the surgeon is to correct pathology or structural changes, yet in his daily work the surgeon can have a powerful influence and oftentimes an everlasting influence with the people he works for by instructing them that prevention is better than cure, and that preventive medicine now is being practiced more and more, and that many diseases are easier prevented than cured.

Then let us as general practitioners and as obstetricians, and as eye, ear, nose and throat men, as well as surgeons, instruct our people—not a part of the time, but all the time—that prevention is better than cure, and that we are ready and willing at all

times to give them advice along these lines in order that they may keep well rather than be sick.

This paper is not written in a spirit of criticism of the medical profession, but in a spirit of reminding us as busy men in our individual work that we can yet render an inestimable service to the public at large that will reflect its usefulness on our people and prove a blessing to suffering humanity.

THE TREATMENT OF GONORRHEA.*

By T. D. Hall, M. D.,
Nashville.

Since this subject requires many subdivisions, and as gonorrhea with its complications embraces quite a field, we will proceed to give below a brief outline of each as to the treatment having given the best results in our hands.

To discuss the treatment of this disease intelligently, we will begin with an acute anterior urethritis and its treatment, and then take up the subsequent complications of the disease as they develop, together with the treatment of each.

When a patient comes to us with an acute gonorrhea, we begin treatment with some of the silver salts, preferably silvol, 5 per cent, or argyrol, 10 per cent. Both of these salts should be freshly prepared with distilled water for each injection, since in solutions made up in quantity and allowed to stand for twenty-four hours or over they are reduced to insoluble oxides of silver. We do not give the patient a hand injection for his own use, for several reasons. First, he does not understand how to use it, and on account of his ignorance as to its use he is liable to do himself more injury than good. Second, having no place where he can secure privacy to treat himself, he uses it at irregular intervals and not as directed. Third, the solution is rarely held in the urethra long enough to do any good. Fourth, the solutions frequently prescribed become non-germicidal within a few hours; for instance, as stated above, argyrol,

which has to be freshly prepared every time it is used in order to be of value, as it becomes practically inert after being in solution twenty-four hours. Fifth, the patient is not competent to judge the progress of his condition, and deserves a physician's own personal care and supervision in the treatment of his infection, as that is what he is supposed to pay for.

During the acute stage, the patient comes to our office from two to three times daily for treatment. After having the patient urinate, we inject very slowly, so as not to force it beyond the cut-off muscle, about two drams of the solution salt of silver used. We then put on a penis clamp or have the patient compress the meatus and hold within the urethra for ten to fifteen minutes.

We always insist on those patients with an acute urethritis drinking large quantities of water throughout the day and keeping the bowels thoroughly open.

As to internal medication, we do not believe that any drug given internally has any effect in producing a cure. The balsams probably have a slight tendency to relieve pain and to decrease the discharge, by acting as astringent to the urethral mucosa. We believe that any advantage from their use is offset by the fact that they upset digestion and irritate the kidneys. Urotropin is of no value in gonorrhea, for in an acute infection the urethra is inflamed and tender, and this necessitates giving alkalies to neutralize the acid urine, as the acidity is irritating to the inflamed mucosa. Urotropin is dependent for its antiseptic action upon its power of forming formaldehyde in the urine. Formaldehyde is formed from urotropin only in an highly acid urine. If it is given in a neutral or alkaline urine, it is inert, as no formaldehyde is liberated.

Irrigations during the acute stage are contra-indicated, as they relax the cut-off muscle and mechanically carry the infection to the posterior urethra, while the ideal treatment is that which confines it to the anterior urethra. After the acute stage subsides we begin using irrigations, once or twice daily, of nitrate of silver 1-6000, alternating with potassium permanganate 1-5000. As the shreds and pus diminish in the urine the num-

*Read at meeting of Henderson County Medical Society, July, 1920.

ber of irrigations is decreased to once daily, and then to every second or third day. Very strict attention is paid to the appearance of the urine in the three-glass test, and also to the microscopical findings in centrifuged specimens.

In chronic urethritis the patients are seen daily for the first few weeks, and then we are governed by clinical symptoms and microscopical examinations of the secretions as to the frequency of the patient's visits to us.

In practically all cases of gonorrheal posterior urethritis the prostate and vesicles are involved. In such involvement massage of the prostate and vesicles is given twice weekly. Massage given more than twice a week has a tendency to irritate and does more harm than good. In addition to massage of the prostate and vesicles, the urethra is massaged on the shaft of a sound introduced into the bladder. The reason for doing this is that in chronic urethritis the glands of Littre along the floor of the urethra are involved, and very gentle massage of these diseased glands on the shaft of the sound forces the contents out and opens up their ducts, which may have become occluded from the chronic inflammation.

The veru montanum in many cases of chronic urethritis is involved. On account of its location in the posterior urethra and its function in the sexual anatomy, when it becomes diseased there is usually a train of nervous symptoms following its involvement. Chronic inflammation of the veru montanum affects the sexual powers in different individuals in different ways. In some it causes temporarily, at least, an increase in sexual desire, while in others it causes partial or complete impotence. In treating the inflamed veru montanum or erosions and infiltrations of the deep urethra we use topical applications of silver directly to the diseased area through a posterior urethroscope.

Persistence in treating chronic urethritis, with its associated prostatitis and vesiculitis, is rewarded in the end by complete cure. There are some patients, however, who do not respond to massage and irrigations. Practically all of these patients will reveal diseased seminal vesicles as the foci of infection. In such conditions, Belfield's method

of treating the vesicles offers the greatest hope of producing a cure. This consists in opening the scrotum high up along the cord and isolating and fixing the vas, then introducing a small hypodermic needle into its lumen and injecting 20 to 30 minims of the solution desired into the vas and on into the seminal vesicles. We isolate and fix the vas, and do a vaso-puncture with the hypodermic needle attached to a 20 c. c. syringe containing about 15 c. c. of the 25 per cent solution of freshly prepared argyrol, and inject very slowly about 5 cc. into either vas.

We have recently tried in acute gonorrheal epididymitis the injection of the vasa with the argyrol solution, after doing an epididymotomy. Our reason for so doing is that the vesicle is involved before the epididymis, and after the epididymotomy and the liberation of the pus the logical thing to do is to treat the primary focus, namely, the vesicle. Our results so far have been very good indeed. Injecting the vas with the strong solution of argyrol causes no reaction and brings the solution directly into contact with the diseased vesicle.

It should not be forgotten that where there is a chronic seminal vesiculitis there is also an associated prostatitis, and that clearing up the infection in the vesicles without overcoming the prostatic involvement is worthless, as the vesicles soon become reinfected. In our opinion, the Cano treatment as outlined by Valentine, Townsend and Cano before the American Urological Association at Chicago, in April, 1917, offers the best method of dealing with the diseased prostate. This method is the intraprostatic injection of about 30 to 60 cc. of 4 per cent phenol in horse serum. Briefly, the technique as described by Dr. Julius J. Valentine is this: The patient is placed in the lithotomy position and the perineal triangle is shaved and treated with iodine. The middle finger of the gloved left hand is inserted into the rectum and hooked above the gland. A 19 mm. gauge needle, $3\frac{1}{2}$ to 4 inches in length, is held firmly in the right hand and inserted into the perineal body in the raphe about 2 cm. above the anus. The finger in the rectum acts as a guide in inserting the needle into the prostate. He then attaches a large Luer syringe filled with the

phenol serum and slowly injects about 20 cc. to each lobe. Valentine has recently reported a series of 256 cases treated by this method with no untoward results (*International Journal of Surgery*, July, 1920).

We have used it in a series of thirty-two cases and are very favorably impressed with the results obtained. We have never had any severe reactions, and feel sure that those who condemn this method of treatment do so for no other reason than that they have never tried it and are altogether unfamiliar with its administration and therapeutic value.

Our experience with the new preparations, aeriflavine and mereurochrome, has been very disappointing.

As to vaccines, we do not have a very high regard for the results obtained in their use. We do not believe that they are of the slightest value in acute gonorrhea, and in the chronic form their value is uncertain. Vaccine treatment is not as yet established on a scientific basis as far as gonorrhea is concerned.

Practically all men can be entirely cured of gonorrhea if they receive proper treatment for a sufficient length of time. We do not think that the same thing holds good in gonorrhea in women, as it is considered an incurable disease after the endometrium, tubes and ovaries are involved. We agree with McDonagh, of London, who says that after the cervix and endometrium are involved, that cauterization of the cervix by strong solutions of iodine and silver nitrate does no good; that no case of gonorrheal endometritis has ever been benefited by curettement, and that instrumentation of the cervix and uterus only aggravates the condition; that there is absolutely no way by which the infection can be reached except by the blood stream, and that as we have no drug in gonorrhea analogous to salvarsan in syphilis, we are forced to admit that chronic gonorrhea in women is beyond our assistance at present.

For this reason alone, more attention should be given to the treatment and cure of gonorrhea in man. The indifference of the profession in the treatment of this disease was forcibly called to their attention by Sir William Osler in his annual address before the Medical Society of London on May 16th, 1917,

who stated: Man wages keen warfare against all other infections except gonorrhea and syphilis alone. That centuries of science have made venereal diseases taboo. That the treatment of gonorrhea especially was administered in a hopelessly apathetic manner. That from the standpoint of race conservation gonorrhea was a disease of the very first rank, causing from 30 to 40 per cent of all cases of congenital blindness, the majority of pelvic inflammation in women, and the unhappiness associated with sterile marriages. That with these and many minor ailments scored against it, that we might say that, while not a killer, as a misery producer Neisser's gonococcus was king among the germs.

THE DEBT OF THE PUBLIC TO THE MEDICAL PROFESSION.*

By L. M. Freeman, M. D.,
Granville.

I shall endeavor to indicate in a brief outline how much the profession has done for the community. The conclusion is inevitable that there is an obligation on the part of the public to recognize this debt by affording enlarged facilities for a profession which has given of its time and labor so unselfishly for the good of the public.

In one respect the medical profession differs from all others in that it is the only profession which is self-destructive. While we live by ministering to the wants of those who are suffering by accident and disease, I glory in the fact that the medical profession is foremost in the endeavor to abate disease and to prevent accident. The profession could not have attained this end by its own efforts alone, but it has been dependent very largely upon the general intelligent co-operation of the public and of sanitary engineers and also of legislators for the legal means to make effective the measures which the profession has shown to be needful for the public health.

*Address of the President, read at annual meeting of the Upper Cumberland Medical Society, 1920.

Public hygiene or sanitation has been a very large element in arresting the ravages of disease which in former times swept over entire nations, and even continents; and it is a source of pride to us that among the foremost sanitarians in every community are the doctors. It is a very striking fact that diseases which once assumed the form of veritable pestilences are now, at least in civilized countries, almost unheard of, and others, though they have not yet disappeared, have had their fangs drawn so that the public suffers far less than it formerly did. If the voice of the profession were heeded even the diseases which have been only abated would almost, if not entirely, disappear.

Let us briefly consider a few of these diseases:

The Plague.—Among the most fearful epidemics which devastated the world perhaps the worst has been what was known as the plague. Those of you who have read James' novel entitled "The Fire and the Plague" will recall the vivid and frightful picture of the epidemic in 1665, during which seventy thousand persons perished in the then relatively small city of London alone. Still earlier, in the fourteenth century, the "black death," as was then its horrible name, swept over Europe and carried off twenty-five million people, one-fourth of the entire population of that continent. This frightful destruction took place in the then most civilized countries of the world. But this terrible mortality, it would seem, is never to be repeated. As a result of laboratory researches the bacillus of the plague has been discovered, and Haffkine has introduced a preventive inoculation with sterilized bouillon-cultures of its bacillus. In India, which is now the home of the plague, Haffkine has shown good results both in experimental inoculations of animals and man.

Another scourge which has been almost throttled in civilized countries is cholera. It first appeared in Europe in 1832, and in France alone 120,000 people died. In the city of New York there were 3,500 deaths.

Yellow Fever.—Another scourge similar in its extent and its violence to the plague and to cholera, and one which appeals to the people of this country even more than those two,

is yellow fever. The story of the fearful epidemic of 1797 is well known to every intelligent American. Not limited to the southern portion of the country, its pathway was strewn with corpses in all of the large cities of the North as of the South. Our immortal Rush has left a monument to his name in his efforts to stem the tide of the disease. By his unselfish bravery and his devotion to duty in the midst of pestilence he set an example which the whole country admires and which fortunately will never again be needed. The later freedom of this country from similar widespread and fatal epidemics of yellow fever is due chiefly to intelligent plans for sanitary reform and to our vigilant quarantine regulations, which as a rule during the present century have kept it at bay.

Another scourge of humanity in past ages has been the dreaded typhus fever. A complete history of this disease would be the history of Europe for the last three and a half centuries. In modern times it is rarely heard of in civilized countries.

Typhoid Fever.—Unfortunately the public has not yet listened to the voice of sanitarian physicians. Every year a large harvest of deaths is furnished the grim reaper in almost all our American cities by typhoid fever. And yet, typhoid is as preventable a disease as typhus, because the means of its diffusion are well known.

All of the diseases thus far considered have been those which have disappeared either wholly or very largely, at least in civilized countries, as a result of improved sanitation and I can therefore well claim that the public owes their disappearance or limitation to the efforts of the medical profession, aided by engineers, by intelligent legislators, by improved methods of food supply, and by the general intelligence of the entire community. But the greatest preacher of righteousness has been the doctor.

The next disease which owes its abolition wholly to the physician is smallpox. In these days, a century after Edward Jenner's memorable inoculation of James Phipps on May 14, 1796, we can hardly appreciate what smallpox was.

The most noteworthy feature in modern medicine is the introduction of laboratory

methods in the study of various diseases. Among other diseases which have been investigated with very fruitful results is tuberculosis, a disease which ranks with alcoholism and syphilis as the most disastrous to the human race and, in the case of tuberculosis, to animals as well as man.

To Robert Koch, of Berlin, a physician, belongs the credit of discovering and of proving absolutely its cause, namely, the bacillus tuberculosis. While it is perfectly true that this has not yet led to the hoped-for results in the cure of the disease yet all must admit that the discovery of the cause of any disorder is the first great step towards its cure.

Laboratory methods have been the means by which the cause of diphtheria, hydrophobia, trichinosis and many other diseases have been worked out, of which I shall not go into the details.

Let us now leave medicine proper and turn briefly to surgery. Before doing so, however, I must point out the fact that all diseases so far considered are medical and not surgical. It is often said that while surgery has made such giant strides of late, medicine has lagged behind. It is but just to physicians to call attention to the fact that the statements already made show that medicine has made equal or even greater progress.

We come now to two of the epoch-making discoveries in the history of medicine, both of which have been made in the last half-century: the discovery of anaesthesia and of antiseptics. Long, of Georgia, had used ether prior to 1846. Practically the introduction of anaesthesia dates from October 16, 1846, when for the first time since Adam parted with his precious rib, Dr. John C. Warren performed a major surgical operation without inflicting the slightest pain. The news spread like wildfire in a prairie, and anaesthesia was soon introduced into every clinic throughout the civilized world. Prior to that time a surgical operation was attended with horrors which those who live in these days cannot appreciate. He was the best surgeon who could perform any operation in the least possible time. To submit to any operation required then a heroism and endurance which are almost incomprehensible to us now. All

of the more modern, deliberate, careful, painstaking operations, involving minute dissection amid nerves and blood vessels, when life or death depends on the accuracy of almost every touch of the knife, were absolutely impossible. It was beyond human endurance to submit one's self for an hour or longer to such physical agony and in absolute physical repose. Such a boon as anaesthesia, the direct gift of the medical profession to a suffering world, has placed the public under a debt which can never be sufficiently appreciated, still less be repaid. Every sufferer may well bless the names of Morton and Warren, to which should be added the name of Sir James Y. Simpson, who discovered the anaesthetic use of chloroform in 1847.

Even the introduction of anaesthesia, however, did not rid surgery of all its terrors. The acute pain of the operation was abolished, but the after-suffering was something dreadful to see. The parched lips of the poor sufferer, tossing uneasily during sleepless nights, wounds reeking with pus, and patients dying by scores from blood-poisoning, from erysipelas, from tetanus, from gangrene, were only too familiar sights in the pre-antiseptic days. Then, again, there arose one of those deliverers of the human race whose name can never be forgotten and whose fame will last so long as time shall endure. Jenner, Warren and Lister are a triumvirate of names of which any profession may well be proud. Thank God, they all spring from virile Anglo-Saxon loins! No praise, no reward, no fame could be too great for them.

Before Lister's day, erysipelas, tetanus, gangrene and blood poisoning were the constant attendants of every surgeon. The surgeon now who does not get primary union without a drop of pus, with no fever and with little suffering asks himself: What was the fault in my technique? This discovery of antiseptics is the direct result of laborious laboratory researches. These two modern discoveries, anaesthesia and antiseptics, have revolutionized modern surgery.

Moreover, there is no profession which gives so freely for the good of the human race. Where is the doctor whose ear is deaf to the cry of suffering humanity in cases of

accident, or during the pangs of maternity, who will not deprive himself of well earned sleep and needed recreation to minister to his suffering fellow creatures without ever a thought of any pecuniary benefit to himself? I am sure that the public does not appreciate the amount of time and the value of the services given to the poor by the rank and file of the profession. Were we to take an account of all gratuitous services rendered by the physicians of this country during one year it would amount to several million dollars.

How shall the public pay this great debt? "Freely ye have received, freely give." We do not ask dollar for dollar, but may we not expect a scriptural tenth? Not for our own pockets, but for our hospitals; not to minister to our own ease and enjoyment, but to equip our libraries and laboratories for larger and more fruitful work; not for our own homes, but for our colleges to furnish us the means for better teaching; in a word, not for ourselves, but for humanity, to whose service our lives are dedicated.

A reproduction of a picture of Mr. Wanamaker's gallery is one of the most striking pictures I have ever seen. On a large canvas by Fritel, in the center of the picture, advancing directly toward the spectator, is a large cavalcade of warriors arrayed in corselet and casque. Their stately march at once arrests the eye. The leader is Julius Caesar. He is flanked by Napoleon and Alexander the Great and followed by Attila, Semiramis, and a lengthening host of those whom the world counts among its greatest "conquerors." They advance between two long rows of rigid, ghastly corpses all stretched at right angles to their line of march. Spectral mountains in the distance hedge in a desolate plain given over to the vulture, the bat, and silence.

I would that some artist might paint a companion picture of the "conquerors in medicine," instead of the conquerors in war. Instead of spectral hills and a barren waste, the scene should be laid in a happy, smiling valley, bounded by the "delectable mountains," and kissed by a fertile sun. The stately procession should be led by Edward Jenner. He should be flanked by Joseph Lister and John C. Warren, and followed by Simpson, Billroth, Livingston, Pare, Virchow, John Hun-

ter, and many a modest but unknown hero who has yielded up his spirit in the performance of his duty. Instead of treading their way between lines of corpses, they should march between lines of grateful men and women and a host of God's little children who, on bended knee and with clasped hands, would reverently invoke heaven's richest benediction upon their deliverers.

Thus should humanity recognize its debt to the medical profession.

SYMPTOMS AND RECOGNITION OF GASTRO-INTESTINAL CARCINOMA.

By Richard A. Barr, M. D.,
Nashville.

We are for some reasons prone to look on cancer as a painful condition. Carcinoma in general (the average case wherever located) is painless, and gastro-intestinal carcinoma particularly so, the only pain, in the great majority of cases, produced by it in this location being colic from obstruction.

Carcinoma is painless and besides is otherwise symptomless, per se. Special locations, special conditions (involvement of a nerve in scar tissue, etc.) may produce symptoms and even severe pain at times; there may be disturbance of function of the involved organ; there is at times ulceration into blood vessels and consequent hemorrhage, but this does not alter the fact that cancer in itself is ordinarily symptomless. Malignant ulcer anywhere is less painful and less apt to bleed than simple ulcer.

The most important fact to be impressed on the lay and professional mind with regard to carcinoma is this: That it is a disease which is characteristically without symptoms of any kind whatever. It is not a matter of being without distinctive symptoms; **it absolutely lacks symptoms.**

Carcinoma does produce a tumor or at least a palpable and visible change in the organ involved, but this may be smaller than the tissue it replaces, and oftentimes is entirely concealed by overlying structures. Carcinoma is not only without symptoms, but also without physical signs in many instances.

Carcinoma of the intestinal tract produces

deformity of the involved organ, it usually produces mechanical obstruction, and ultimately it produces cachexia, which is nothing more nor less than malnutrition and might just as well go by such names as anemia, general debility, etc. Deformity, obstructive or otherwise, can hardly be classed as a symptom. Cachexia has symptoms of its own, it is a terminal condition in carcinoma, and not a symptom.

Carcinoma of the body of the stomach, of the caecum, and of the ascending colon frequently fails to produce obstruction and first manifests itself by the production of cachexia.

Since obstruction and cachexia are conditions produced by gastro-intestinal carcinoma, it behooves us in every case of either or both of these conditions in a patient of cancer age to make a careful investigation for the purpose of proving or excluding that disease. While the obstruction produced is usually chronic, it may first be recognized during an acute exacerbation.

Carcinoma, then, should always be thought of in either acute or chronic intestinal obstruction in a patient of cancer age, or at any age, for that matter, and the fact kept in mind that the acute obstruction of carcinoma can usually be relieved by medical treatment.

At the Mayo Clinic gastro-intestinal carcinoma had the following distribution in 3,535 cases:

Stomach -----	1,685
Small gut -----	24
(Duodenum, 5; jejunum, 11; ileum, 6; multiple, 2.)	
Colon and rectum -----	1,822

Obstruction.

Carcinoma of the stomach being at the pylorus in 60 per cent of cases, and on the lesser curvature or at the cardia in 20 per cent more, naturally produces obstruction in most instances.

Carcinoma of the small intestine inevitably produces obstruction sooner or later, duodenal cancer also causing biliary and pancreatic obstruction, in many instances.

Carcinoma of the colon and rectum also produces ultimate obstruction, though as already stated, it is often delayed in the caecum and ascending colon.

Cachexia.—All carcinoma ultimately produce cachexia.

Tumor.—Sixty-seven per cent of proved carcinoma of the stomach as reported by Carman had palpable tumors. Three out of five duodenal carcinomata, six out of eleven jejunal carcinomata and three out of six ileal carcinomata reported by Judd had palpable masses.

About 40 per cent of carcinomata of the colon show a palpable tumor. Carcinomata of the rectum and anus always present demonstrable tumors to careful examination.

The development of a palpable tumor in gastro-intestinal carcinoma indicates an advanced stage of the disease.

Since clinical obstruction, definite cachexia and palpable tumor are all evidences of advanced malignancy, these evidences, even if acted on promptly, will give only minor successes in the way of permanent cures.

Gastrosopic and proctoscopic examinations are helpful at the respective ends of the gastro-intestinal tract. Unfortunately, the pyloric end of the stomach and the colon proper are beyond the reach of these aids.

Our greatest aid in the recognition of gastro-intestinal carcinoma is the x-ray. It shows deformities, demonstrates obstruction before it is clinically recognizable, and anticipates cachexia and palpable tumor. It of course does not show cancer to be present. It shows conditions of which cancer is one of the causes, much the most common cause in fact, and we must make the deductions.

The future of the recognition of gastro-intestinal carcinomata rests upon our ability to catch an early hint from slightly marked evidence that x-ray investigation is indicated, or, better still, upon annual x-ray investigations of all people of cancer age.

Let us impress on ourselves and on the public that absence of pain means nothing in excluding carcinoma; that the very first evidences below the skin or beyond the orificial mucous membranes of the body are slow about showing up. Failure of digestion, loss of general tone, anything a patient of cancer age may notice as a departure from his normal habit is worth investigating. Until we begin to make a great number of investigations with negative findings we will never get many

gastro-intestinal carcinomata early in their course.

Let us teach ourselves that it is much more creditable to put a patient to the expense of an investigation with negative findings, than to wait for the definite clinical evidence which means some 25 per cent of cures as the limit of our efforts at treatment. Again the x-ray as a diagnostic aid must be placed on a cost basis which permits of routine examinations. The technician can locate abnormalities, and when these are present or there is suspicion of their presence, the consulting roentgenologist can be called in for definite diagnosis.

VIVISECTION.*

By S. Dana Hubbard, M. D.,
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Education.

What is vivisection? A rather broad and general definition of vivisection—as understood and applied by laymen—is the dissection or cutting up of live animals in experimentation.

It is thought, too, by many that this is performed without anaesthetics or only those anaesthetics which paralyze muscular motion and do not prevent pain or suffering.

Further, that such experimentation is done often simply for practice or “showing off,” as it were, interesting phenomena. That the vivisectioners are men blind and deaf to all evidence of pain and suffering. This is untrue and false.

No class of people know better than do Americans what constitutes cruelty to animals, and no country has such wise and sane laws on this subject as do the states of this fair land.

“Cruelty to Animals.—Whoever overdrives, overloads, overworks, torments, deprives of means of sustenance, cruelly beats, mutilates, or cruelly kills, or causes to be so done, inflicts unnecessary cruelty upon animals, and should be punished by imprisonment.”

Such is the law here and elsewhere.

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We, no doubt, all agree that experimentation, especially when accompanied by vivisection, should be undertaken only by properly qualified persons, and only by those who have a due appreciation of their responsibilities in this undertaking.

Every regard should be paid for the comfort of the animals employed. The ultimate aim of this work is the **progress of knowledge** and the consequent relief to suffering which is so often the result of ignorance.

The benefits which may accrue from such animal experimentation are felt not only by human beings but (as in veterinary practice) by animals also.

No attempt will be made by me to defend experiments which have not these distinct aims in view. The ideal experiment is one performed without anaesthesia and without pain. In many cases this ideal can be realized, but in others it is not obtainable.

Pain must be absent (1) on the broad ground of humanity, (2) because it is a far greater disturber of the normal body functions than anaesthetics, and (3) because the struggles of the animal in pain would nullify the accuracy of the experiment, (4) also such resistance would endanger the safety of the delicate apparatus which it is necessary to employ in such work.

Exactly the same argument applies to the study of experimentation of conditions concerning aseptic methods of surgery. Here experiments in which the animal is kept alive after an operation to study its effects must be accompanied by the healing process, which is then painless, and if sepsis occurs there is absence of fever and inflammation; these latter would complicate the issue and render void the test.

It is therefore for two reasons that experimenters use both anaesthetics and antiseptics, (1) to save an animal from suffering pain, and (2) to insure the success of the experiment.

The science of thought is the science of life.

To understand the meaning of vital processes it is necessary to study the living organism, and to obtain this knowledge it is sometimes necessary to perform experiments on living animals.

Some persons regard all experimentation as cruel, detestable and immoral because of un-

scrupulous misrepresentations put forward by agitating fanatics who do so without apparent reason or purpose. The barbarities recorded by certain antivivisectionists do not in reality exist. The repetition of these stories, in spite of repeated contradictions, is, no doubt, incident to wilful misrepresentation and exaggeration oftentimes, but in some instances it may be due partly to ignorance of the meaning of the technical terms employed by physiological writers or misplaced affection for dumb beasts.

Repeated investigations here and elsewhere have been made, and charges made against experimenters have been carefully sifted, and in no single instance has a charge of cruelty been sustained. All horrifying cases of torture reported have, in the light of fair analysis and reason been abundantly disproven, and these unfair and untruthful statements have been made only to be later retracted.

There are always two sides to every question. Vivisection is no exception—there are those who favor this form of research and there are those who oppose it.

We will take up the side of the opponents to experimentation. I do not wish to raise bias to influence fair judgment, but I must present my facts as history gives them.

The "Shambles of Science," the title of an article against experimentation, and which enjoyed but a short life, occasioned a libel suit in which damages of 2,000 pounds sterling as assessed against this work, the court characterizing it as the "hysterical work" of a fanatic. The Lord Chief Justice advised that such a book should be immediately withdrawn from publication, yet this book has been reissued with the chapter that formed the subject of the libel entirely omitted. Lovers of idle sensation can still read this work, but on what merit can it ask for your consideration?

Now let us look the facts squarely in the face.

What have the anti-vivisectionists done? What benefit has come from their hands?

Dr. W. W. Keen, an eminent surgeon, is authority for the following:

"The anti-sectionists have not a single life saved by their efforts.

"Not a single beneficent discovery has been made by them.

"Not a single disease has been abated or abolished by them, either in animals or in mankind.

"All that they have done is to resist progress, to spend money to conduct campaigns—of abuse and misrepresentation.

"They care apparently little or nothing for the continued suffering and death of human beings or the grief and ensuing poverty of innumerable families.

"They have provided that 26 out of every 1,000 dogs, cats, monkeys, guinea pigs, mice and frogs experimented upon shall escape physical suffering.

"They insist that all experimental research on animals stop and that thousands of human beings and useful animals shall continue, year after year, to suffer and die."

The age of experiment is the age of progress.

Stop experimentation and you stop progress—medicine is no exception.

Dr. S. Weir Mitchell, an intimate friend of Dr. Keen's, when visiting the anti-vivisectionists' exhibit in Philadelphia, put the matter of the opposition to experimentation in a nutshell when he said:

"Your exhibit is not quite complete—you should place here a dead baby and there a dead guinea pig, with the motto, 'Choose between them.' "

The anti-vivisectionists may be sincere, but it is the opinion of many that they are not fair in their methods of opposition.

Many persons seek light and truth about animal experimentation. The word vivisection is objectionable, for its meaning is usually extended to cover experiments on the effects of the varied and difficult problems connected with nutrition and physiological chemistry, efforts to determine the processes of digestion, the effects of drowning and the value of various methods of resuscitation, of hypodermic injections of various drugs, but none of these involve any "cutting up of a living animal." Only about 6 per cent. of all experiments on animals are strictly vivisections. Every surgical operation is literally a human vivisection—and we take it for granted that these are done humanely and properly and anaesthetic is used, whether such fact is so stated or not. Then why not in simple jus-

tice so infer when reading or being told about animal experimentation?

The Real and Necessary Object of Vivisection.

While animals have benefited enormously from experimental research, the chief object has been to benefit the human race, to diminish suffering, baffle death, and save the breadwinner to the family and the country, or the loved one to relatives.

There are only three ways open to lessen or abolish disease:

1. Try a new remedy or method or operation, and try it first on man—Gor forbid!—yet there are advocates of human vivisection.

2. Try them first on the lower animals and then on man, provided the trials on animals showed that they would be an improvement upon existing methods. If trials on the lower animals proved that they were ineffective or dangerous then they should not be tried on man at all.

3. Try no experimentation at all either on animals or man—that is to say, “Never make any progress.”

Remember, that the least deviation from the usual practice, whether in using a new drug or even a larger or smaller dose, or in a different way, is an experiment.

Hypodermic injections were unknown until about fifty years ago.

Lumbar puncture, in order to make a diagnosis and later to inject a remedy, was unknown until a little over twenty years ago, and has only become routine within the last few years.

“Clinical observation” is constantly vaunted by the “antis” as the proper and best method of progress. I would be the last to decry this method of progress, but the moment you act on your clinical observation by any new method, any new dose, or drug, or any slightly varied or new operation you are making an experiment, and on a human being.

If the departure is so great from prior procedure, is so great as to involve serious results, then I hold that no one has any right to try such upon a human being first, if it is possible to test it on a lower animal.

In seven years of experiment on animals more was done for alleviating human misery from the ravages of syphilis than clinical observation has done in over four centuries.

Objection has been made that animals are so differently constructed from man that inferences from results on animals are of no value in the case of man. There are a few such differences—these are known; and even if sometimes marked differences did exist—such, for instance, as the effect of belladonna or of opium—but as a fact, barring these few exceptional cases, the organs and functions of man and animals correspond exactly in health and disease, and the effects of drugs and operations are parallel and in most instances identical.

The “antis” claim the support of a large number of doctors. Undoubtedly there are some physicians who endorse their views, but who are they? Investigation into these names shows that if the persons to whom they belong are living they are unknown in the profession of medicine. A few of earlier times were men of distinction, but to cite the opinions of men who died years ago against the opinions of similar leaders of today, is like citing opinions of eminent engineers of the last century as to the methods and even the possibilities of constructing a Panama canal; you know it was for years considered by the most eminent as impossible—but it was done, against the opinions of engineers of today. Facts speak for themselves.

Syphilis and Vivisection.

Many of the victims of this dreadful disease are innocent.

Many are innocent little children—unborn babies. Some are dead when born, others destined happily to an early grave, and still others, less fortunate, doomed to drag out a most miserable existence.

Of course, it would be impossible, except as a last desperate resource, to experiment with this disease on human beings.

Metchnikoff, 1903, first succeeded in inoculating this disease in apes and later in other animals.

Experiments, heretofore impossible, were immediately begun.

In 1905 Schaudin and Hoffman thus discovered the germ.

In 1910, after a most extraordinary series of experiments with 605 other remedies, Ehrlich discovered Salvarsan, “606,” since which

time we have had the whip-hand over this plague.

Anti-vivisection if followed to its logical end would not let us fish as a business, for the fish are suffocated by their removal from the water and are thus "tortured," not for their benefit, but for our food.

Would it not also be illogical to poison or trap a rat, even if the plague were at our doors? Or a mouse, if the house is invaded? Or to starve the typhoid-fly in a trap or on "tangle-foot" paper? Or to poison a roach, though its instant death under foot would be allowable?

To judge of the character of argument presented by the "antis," let us select some of the phrases or epithets used by the writers in favor of not permitting experiments on animals—the mass of terms indicates the vehemence of the opposition:

Scientific hells, orgy of cruelty, inhuman devils, devil's work, abominable sin, fiends incarnate, damnably mean, infernal work, diabolical vivisection, deliberate dabblers in blood, cruelty of cruelties, scientific assassination, black art of vivisection, imps of hell, human monsters, working model of hell, torture house, halls of agony, devils incarnate, scientific murder, devilish science, arch fiend, master demon, hellish wrong, bloody mass of agony, temples of torment, lust of cruelty, torture of the innocent, satanic, fiends, demons, devilish inventions.

Such are some of the many terms applied to vivisection and research institutions by these advocates.

What Vivisection Has Done for Human Beings and Animals.

The achievements of research:

1. Antiseptic method of surgery made possible.

2. The many wonders of modern surgery are largely the results of animal experimentation.

3. Surgery of the internal organs—stomach, spleen, liver, appendix, intestines, gall stones, kidneys, and female organs is possible through the study of infection by experimentation on animals.

4. Modern and wonderful surgery of the

brain made possible through experimentation.

5. The new surgery of the chest, including the heart, the lungs and large vessels made practical through experimentation on animals.

6. Tetanus (lockjaw) has been almost entirely abolished. Prevention is possible only through such experimentation on the lower animals. This formerly often occurred after operations and after accidents, especially pistol shot wounds and fireworks.

7. Reduced the death rate in open fractures (compound) from 66 in a hundred fatalities to less than one in a hundred.

8. Reduced the death rate in major female operations from 66 in a hundred to from 2 to 3 in a hundred.

9. Made the death rate in operations for rupture, amputation, and removal of tumors a negligible factor.

10. Abolished yellow fever—a wonderful triumph—and through its sanitary effect on engineering problems, made possible the Panama Canal. In this instance human volunteers had to be used and one, Dr. Lazaar, sacrificed his life.

11. Diminished materially the ravages of malaria.

12. Reduced the incidence of rabies (hydrophobia).

13. Devised a method of direct transfusion of blood, which has saved many previous lives.

14. Cut the death rate of diphtheria. All over the world—in nineteen European and American cities, the death rate has been made to fall from 79.9 per 100,000 population before antitoxin to 19 per 100,000 (1894 before—1905 after). The rate is less than one-fourth its former rate.

15. Reduced the mortality of epidemic cerebro-spinal meningitis from 65 per cent to 25 per cent.

16. Largely abolished post operative hospital sepsis and gangrene, the foes of surgical undertaking. Formerly no matter how brilliant the operation or the operator, these fatal hospital diseases, sepsis and gangrene, were apt to appear and destroy the patient.

17. Made operation for goitre possible.

18. Aided in reducing the death rate of tu-

berculosis. Koch's discovery of the germ of consumption is the "corner stone" of all of our modern sanitary achievements.

19. Through animal experimentation the British army abolished Malta fever. Before research this destroyed in 1905, 1,300 men of the garrison; in 1909, after research, there was only one death.

20. Almost abolished puerperal (childbed) fever. Statistics before discovery, 5 to 57 deaths of mothers per 1,000, while today, after such discovery, the rate is 1 in 1,250 births.

21. Discovered Salvarsan, "606," which bids fair to protect many innocent wives and unborn children.

22. Typhoid vaccine largely abolished typhoid from armies of the world wherever used.

23. Through animal experimentation we are gradually lessening the ravages of cancer and we hope we are approaching the discovery of the cause of cancer, poliomyelitis, and other children's diseases; then we hope the cure will quickly follow.

25. Sleeping sickness—methods of transmission, pathology, and treatment.

26. Animal experimentation has enormously benefited animals by discovery of the causes, and in many cases the means of preventing, and in some a positive cure. Conspicuous among these are tuberculosis, rinderpest, anthrax, glanders, hog cholera, chicken cholera, lumpy jaw, and other diseases, some of which also attack mankind.

Surely this list is sufficient reason to forward for experimentation, and any intelligent person would be sufficiently influenced by the same. When science has progressed through this aid, who is the fellow who would dare stay the hands of men who are trying to lift the curse of disease from the whole race, not only of mankind, but of animals also? I say, if there be such creatures, let such cruel ones, enemies of our children, of our sick, in fact, enemies of humanity, let them stand up and be counted by all.

There is still much work to be done—in fact, we have just crossed the threshold of preventing and curing of the infectious diseases.

The work on malarial fever is advancing

rapidly through mosquito study, and if we continue to progress as fast as we have in the past ten years, this dread disease will be annihilated.

The pain inflicted in all the laboratories of the world put together during an entire year is less than that which is every day inflicted in the slaughter of animals for food, and this, too, under the most modern cruelty of animal supervision; also, to that which farm laborers inflict in spaying animals by thousands in order that beef and mutton may be more tender or have a more pleasant flavor; to that inflicted by the hunter when the victims of his sport are imperfectly shot, die a lingering death, or wounded, are unable to water and feed themselves, and so suffer interminably; to that which women allow in order to have fine feathers (ospreys) in their hats and furs upon their backs.

So far as the satisfaction of appetite, the pandering to the so-called sportsman's instincts, or the gratification of vanity are concerned, those things known to be useless and cruel may go on uncriticised or unchecked. The "antis" disregard these facts, or to date have made no effort to prevent them, so far as we can determine. The only pain which seems to stir the feelings of the "antis," meeting their disapprobation and enabling them to indulge in their familiar epithets, is one of the most justifiable bits of pain in the whole world—a pain inflicted with the noblest of all objects and by humane men, for so admittedly must the medical profession be considered—that object being to prevent future pain, which otherwise would encompass the whole of life.

The "antis" do not come in contact with disease and suffering all day and every day as medical men do, therefore it is impossible for them to realize how widespread sickness really is, and what terrible form it takes in many instances. Their ideas are vague, they talk about physical suffering without any intimate knowledge of this question.

These bestow their sympathies along upon the moderate number of animals subjected to the vivisector's knife or syringe—guinea pigs, dogs, rabbits, mice, monkeys, etc.

They have no sympathies for the large number of victims of preventable disease which

would have suffered far more intensely if the few had not been sacrificed. Can it be wondered at that medical men, whose experience is so different from theirs, should feel otherwise? The busy doctor's life is not one in which there are just a few painful partings with dear ones, but he has many daily experiences, from early morn till late into the night. His sympathies aim at the relief and cure of all this evil, and the death of a few guinea pigs or rabbits is a necessary incident which he has the courage to permit because of the greater good that is the ultimate result.

Diphtheria.—The change in our opinions regarding this disease, incident entirely to animal experimentation, is incontestable. This disease no longer inspires the terror it used to do, for it is one that can be definitely ascertained, and if early detected, can be quickly and easily cured by the method of serum therapy.

Typhoid Fever.—It was not until the germ of typhoid fever was insolated and generally recognized; not until its growth and means of its destruction, not until its methods of transmission were fully understood, that this very serious malady was controlled. Today it is a rarity in many of our largest cities. Medical schools are complaining that students through a whole four-year course fail to see a case in order to study it clinically.

Immunity to Disease.

Bacteriology is at the bottom of hygiene and sanitation.

It is by observing hygienic precautions that certain communicable diseases are prevented.

The basis of bacteriology so far as it relates to the production of and recovery from disease is animal experimentation.

Filth or dirt has been defined as matter out of place. Blood on a carpet is certainly dirt, and it ought not to be there, but blood in the arteries or veins is in its right place, and it does the duty of nutrition. One of these duties is to exact a protective influence upon the whole body. We are exposed, all of us, so long as spitting in public places is not prevented, to the germs of many communicable diseases, particularly consumption and influenza, but we do not all die of these diseases.

This is mainly because the scavengers of our system—the white blood corpuscles—are in good trim and are able successfully to devour the bacteria that enter our interior.

It is only those persons who are “run down” and in whom the white corpuscles are below par that contract disease. In assisting the white corpuscles to perform the duty of destroying dangerous organisms entering our bodies, the co-operation of certain substances dissolved in the fluid portion of the blood is also essential.

Some time ago—quite recently—there was discovered auxiliary substances and we called them “Opsonins,” from a Greek word which means “prepare for the feast.” The opsonin either adds something to the bacterium which makes it tasty to the white blood corpuscles (or neutralizes) or modifies something which previously made it distasteful. The white blood corpuscles will not ingest and devour most bacteria from an ordinary culture fluid, but they do so eagerly and immediately the bacteria are bathed in serum and the serum which is most efficacious in acting as a sort of sauce is that which has been obtained from an animal which has been previously infected with the same kind of bacteria, and which has recovered from the ailment such bacteria have set up. This is not mere fancy or theory. It is well known that the yeast plant (yeast, by the way, is very similar in many details to bacteria) may be grown in a solution of sugar and that the sugar is broken up and disappears and two new substances formed from the sugar take its place. One of these is the poison alcohol.

If bacteria grow in the blood they produce poisons in a way analogous to that by which yeast produces alcohol. These poisons are called toxins.

There are substances in the blood which are called antitoxins, because they neutralize the toxin produced by the bacteria. The presence of antitoxin (diphtheria) is a means of natural defense against the harmful effects of the toxins which they would otherwise produce. This may be determined by a test devised by a scientist and is called after his name, “the Schick test.”

The marvelous part of nature's defense is that unless we are overwhelmed quickly, an-

titoxin in our blood increases in proportion to the amount of toxin. How can we explain this? The following is a practical method of so doing. It is a familiar fact that manual labor increases the hardness of the palms of the hands—the friction stimulates the outer cells into increased activity, so that the top layer of the skin grows in thickness. The body affords numerous instances of how it is capable of “rising to the occasion” and increasing its defenses when called upon similarly. Just in this same manner the presence of a toxin in the blood stimulates living cells to produce more and more antitoxin. Another peculiar fact is also demonstrable—the blood remains rich in antitoxin for a considerable time afterwards, this showing how it is that one who has had an infectious disease does not readily take it a second time. He is immune, we say, and will continue to resist reinfection for a certain number of years, because his blood is so rich in the antidote. By infecting the horse we can obtain these antibodies in great concentration and transfer them to human beings of all ages, and so prevent and cure several diseases.

The principle of serum treatment depends upon these ascertained and definitely proven facts, the direct result of animal experimentation.

Now, something about consumption. How may we cure this dread disease? We know the cause, but we have not as yet discovered a remedy. Scientists everywhere are working on this and they should be aided, and not hindered. In the treatment of tuberculosis the doctor tries to increase nature's method of cure: good, easily digested food, pure air, at all times. These do much to increase the healthfulness of the blood stream and fortify its natural power of destroying germs. Many times this alone suffices, but at other times it is wholly insufficient, particularly if the disease has advanced and the number of bacteria is too great for the enfeebled white blood corpuscles to battle successfully against.

If it existed the doctor would administer some opsonin by injecting it under the skin, in order to increase the resistance of the patient. But in this disease (tuberculosis) we do not know the opsonin—it is up to us to find it.

The making of anti-bodies in animals for use in man or animals for the prevention and cure of disease:

Let us choose for description diphtheria antitoxin:

A pure culture of virulent diphtheria germs is grown in broth and the toxins formed are filtered off and a certain amount is injected into a horse. A slight swelling appears locally. When the animal has recovered, a second larger injection is given. This blood is collected. This is repeated several times, for it is rich in diphtheria antitoxin, the natural antidote that has enabled the horse to withstand at the end of the series of injections a dose of toxin, which if given earlier would have killed it. The horse's blood is allowed to clot, and the liquid residue (serum) contains the antidote. This is purified and concentrated and is the diphtheria antitoxin used so successfully in the treatment of diphtheria in human beings. But it must be given early and in sufficient dosage. The Department of Health gives a schedule of dosage according to age of patient and character of disease.

What more natural way is possible of treating a disease? It has been used in this city since 1895, and has reduced the death rate from diphtheria from about 40 per cent to 8 per cent.

The pathologists at first were timid about using horse serum in human beings even if it carried the life-saving antitoxin or opsonin, but Professor Richet argued that if this serum protected a horse injected with many times a fatal dose of diphtheria toxin, it should do so in the case of a human being, and he tried it and it was successful.

The diphtheria poison is very deadly in the human being, therefore to be effective, it must be used early in order to antidote the toxin. Today the treatment of diphtheria is mainly by using diphtheria antitoxin. Not to employ it indicates that the doctor is uninformed and is jeopardizing the precious life of his patient, and to continue not to use such an antidote is little short of criminal.

Diphtheria has not been stamped out because the efforts of prevention are not adequate, and those that are known to science are not uniformly and generally applied.

Prevention, it is true, is better than cure,

but cure is better than suffering and death. Today the medical profession can positively cure diphtheria, and by use of the vaccine can prevent it, and if medical progress continues its stride as it is doing, who can doubt but that in the very near future diseases like yellow fever, typhus, typhoid and small pox will not only be rare, but will be stamped out.

Why, may we ask, has typhus and typhoid fever died out in our large American cities? In our opinion it is incident directly to the learning of their nature, improving sanitation, and destroying the vermin that transmit typhus and the bacilli which cause typhoid fever. How did we learn these facts? Of course, largely through animal experimentation.

Many citizens quite often complain of the extravagances of public officials and of the indifference in quarters affecting health. Why is this? But, you will say, how does this come in here? The public authorities are not vivisectionists. No! it is true that in many instances they are not, but the action of all public health officials is directly due to the desires of public opinion—healthy public opinion, which has been preached to deaf ears for many years, has at last impressed itself upon many minds, and this knowledge was the offspring of pathological experiment. It was not until the germ of typhoid was isolated and recognized that prevention and control through such means as the pasteurization of milk and the purification of water became certainly possible, yet these alone were not wholly effective under conditions such as exist in warfare until the immunizing vaccine was produced, tested on animals and man and then successfully used in our armies. Now having such a lesson before us, must not the people obey the teachings of science?

Let us pursue this vivisection still further.

A ship enters our port. It is infected with plague, and the ship is also infested with rats—carriers of plague.

Would it be preferable to kill the rats and so prevent them and the disease—a terrible pestilence—entering our port? A plague visitation would cause untold disaster. Or would staying one's hand, because the slaughter of the rats would be a painful proceeding, be the more preferable?

The captain who spared the rats would be guilty of a criminal act which would cause the unnecessary death of many innocent human beings, and I might state that it is so with many anti-vivisectionists, who by their acts are similarly causing the deaths of many innocent human beings, as well as animals.

The anti-vivisectionist sees only the pain inflicted, and does not heed the pain prevented.

Conclusions.

Unnecessary and needless vivisection should be stopped.

Vivisection by inexperienced, unsophisticated, and improper individuals should be stopped.

All vivisection should be accompanied by every possible precaution to prevent suffering of all kinds.

No one should needlessly restrict scientific bodies in pursuit of knowledge to aid the sick or suffering.

That experiments upon living animals have proved of the utmost service to mankind in the past and are indispensable to the future progress of medicine and public health.

While strongly depreciating the infliction of unnecessary pain, it is our opinion—alike in the interest of man and of animals—that it is not desirable to restrict competent persons in the performance of animal experimentation.

We regret the widespread lack of information regarding the aims and achievements and the procedures of animal experimentation, and we deplore the persistent misrepresentation of these aims, purposes and achievements.

We protest against the frequent denunciation of self-sacrificing, high-minded men of science who are devoting their lives to the welfare of mankind in efforts to solve the complicated problems of living beings and their diseases.

It is our opinion that unrestricted performance by proper persons of scientific experiments upon living animals is essential to the maintenance and progress of medicine and its allied science, biology.

There is not, so far as I can learn, a single resolution of any scientific body expressing a contrary opinion.

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee

Office of Publication, 327 7th Ave., N., Nashville, Tenn.

OCTOBER, 1920

EDITORIALS

THE ANTI-VIVISECTIONISTS.

An article on "Vivisection," by Dr. S. Dana Hubbard, of the New York City Department of Health, is reproduced in this Journal, being taken from the "Bulletin" of the above-named department. This article was written for the general public and is somewhat long, but we have thought it worth printing because it sets out the methods of the anti-vivisectionists and gives the reasons which they assign for their opposing animal experimentation, as well as the benefits which have attended upon animal experimentation, the humane methods which have been followed by scientific workers, and the need for further experimentation.

A further reason for the "running" of Dr. Hubbard's article is that the anti-vivisectionists have apparently renewed their efforts to secure legislation in Congress which will seriously interfere with, if it will not prevent, animal experimentation. Everybody who is really interested in humanity and who believes that human efficiency needs to be and can be conserved through disease prevention should inform himself concerning the pernicious activities of the anti-vivisectionists and should seek to combat their evil designs.

ONE PROGRAM TO CANCER.

Dr. L. L. Shedd, President of the Tennessee Medical Association, in accordance with the request of the American Society for the Control of Cancer, and in the hope that practical benefits will accrue, has directed the Secretary to send a letter to the officers of each component county medical society asking that the entire program of the December meeting

of each society be given over to the subject of cancer.

The number of annual deaths from cancer in Tennessee is a large number, and the indications are that cancer mortality is increasing year by year. Doctors and people need to be more impressed with the importance of early and correct diagnosis of cancer and of conditions which may become cancer. The possibilities of right treatment need to be stressed. The aids to right diagnosis need to be better known and more often used.

One meeting given over to this important subject by every county society will produce worth-while results.

For your December program: **Cancer!**

WHAT WE KNOW ABOUT CANCER.

The physicians of Middle Tennessee will receive during the last two weeks in October copies of "What We Know About Cancer," a handbook for the medical profession prepared by a committee of the American Medical Society for the Control of Cancer, and published jointly by that Society and the American Medical Association. The distribution of these handbooks will be made by the Tennessee State Board of Health, because the Nashville Academy of Medicine and Davidson County Medical Society made them available by purchasing the necessary number to put one of them into the hands of every doctor in Middle Tennessee.

"What We Know About Cancer" is a splendid compilation of the facts as they are now known, presented in a readable manner, and complete without undue length and burdensome detail. Physicians who read this handbook carefully will be better able to diagnose malignant disease and better able to advise those who consult them because of such disease. What is better, though, is that they will be impressed anew with the great importance of **early** diagnosis and **early** treatment of conditions which tend to become malignant.

The Nashville Academy of Medicine and Davidson County Medical Society, in our opinion, has done a good thing in making it possible for the doctors of Middle Tennessee to have the handbook on cancer. It would be

fine if others of our largest and strongest societies would follow the example and help put this little book into the hands of every physician in Tennessee.

ONE LICENSE FOR ALL STATES.

Resolution adopted by the House of Delegates of the Ohio State Medical Association at its last annual meeting, held in Toledo, June 1, 2, and 3, 1920.

Whereas, in our forty-eight states there are as many separate medical examining boards; and

Whereas, licensed physicians in one state may not always practice in other commonwealths without vexatious examinations and expense; and

Whereas, the Government in time of war frequently sent physicians into army camps in other states, and therefore disregarded state boundaries; and

Whereas, there is practically homogeneity in the anatomical and psychological make-up of the people in the various states; and

Whereas, the same may be said of the physicians throughout the land; therefore be it

Resolved, that it is the opinion of the House of Delegates that the right to practice in one state should be extended to include the right to practice medicine in any part of the United States. Be it further

Resolved, that a copy of this resolution be sent to the proper officials of all medical societies, and to national and quasi-national medical associations, and that the American Medical Association be especially urged to perfect a plan by which interstate medical practice be made as easy as interstate commerce.

MILLER-JORDAN.

Dr. S. R. Miller, Knoxville, was married on September 29, at Wabash, Ind., to Miss Loran Winson Jordan.

Dr. Miller, one of the prominent surgeons of East Tennessee, has long been one of the most active and most useful members of the Tennessee State Medical Association. He has been honored by assignment to the most responsible positions in this Association and in his local society. At present Dr. Miller is Chairman of the Board of Councilors and Chairman of the Committee on Medical Defense, having held these positions for a number of years. In them he has rendered splendid service.

Dr. Miller's friends, which in this Association are co-numerous with its membership, will wish for him and his bride all the happiness that life can bring to them.

DR. W. D. MILLER.

Dr. W. D. Miller, age 39, a member of the Lauderdale County Medical Society, and of the Tennessee State Medical Association, died at his home in Ripley on September 21, 1920, from pernicious malaria.

Dr. Miller received his degree of doctor of medicine from the Memphis Hospital Medical College in 1902, and has practiced at Ripley since that time. He was at one time Secretary of the Lauderdale County Medical Society.

PRACTICE FOR SALE.

Practice amounting to \$6,500 annually and six-room residence on one acre of ground in good East Tennessee town for sale for \$7,500. Or will sell practice for \$2,500. Town on railroad and on Memphis to Bristol Highway. House one of the prettiest and best located homes in the town. Reason for selling—expect to locate elsewhere. Address Journal Tennessee State Medical Association, Nashville, Tenn.

NOTES AND COMMENT.

If you are reaching middle age obliterate the dead line. You will find it a good plan to cultivate the acquaintance and friendship of youngsters in medicine. It will keep you young in mind and will be mutually beneficial to you and the youthful practitioner.

Do not criticise, unless constructively, your community and its health officer for unsanitary conditions. Public health is a purchasable commodity, and the interest of the community is directly proportional to the interest of the profession in that community.

The East Tennessee Medical Association met at Greeneville on September 30, with a good attendance. We have not been advised concerning the election of officers.

While mercury and salvarsan are "specifics" in the treatment of syphilis, they do not exert direct and definite effect upon the spirochete; they only help the tissue to meet the assaults of the organism. Overdoses help to defeat the real purpose of the medicine.

Scarlet fever and diphtheria are abroad in the land. The annual fairs are always followed by a great many cases of these two diseases, if they are at all prevalent at the time the fairs are held.

Does your interest in a communicable disease ease involve only the patient? Or, do you also try to protect the community which supports you?

Dr. A. S. Dabney, Nashville, has accepted a commission as Major, Medical Corps, U. S. Army, and has reported for assignment.

An advertisement in this Journal offers for sale a well-established and paying practice in a good little East Tennessee town.

Be sure to use the eliminating power of the skin to the utmost in disorders of kidney function.

Exophthalmic goiter and syphilis have been shown to be closely associated.

When you use hyprodermatic medication, be its master and not its servant.

MISCELLANEOUS

TREATMENT OF THE PAROXYSM OF ASTHMA.

The attention of our readers is invited to the brief article on "Adrenalin in Medicine" which will be found in the advertising section of the current number of this Journal. While obviously this space is purchased for advertising purposes by Messrs. Parke, Davis & Co., it has been put to a novel use by the publication therein of a scientific essay of unusual

merit in which a vexatious problem is discussed.

Whatever intelligence the future has in store on the pathology of asthma, the present state of our knowledge justifies the use of any dependable therapeutic measure for the relief of the acute paroxysm. Morphine is objectionable for reasons that are generally accepted. Per contra, adrenalin does not narcotize the patient. It affords him almost instant relief, with no disagreeable sequela to mar the effect. To quote from the announcement under consideration, "Adrenalin is the best emergency remedy for the treatment of the asthmatic paroxysm at the command of the physician."

Two to ten minims of the 1:1000 solution are injected subcutaneously or into a muscle, relief usually following in a few moments.

USING UNFIT ETHER.

In the case of Moehlenbrock vs. Parke, Davis & Co. et al., the Supreme Court of Minnesota denied the surgeons who had administered the ether a new trial, after a verdict had been entered against both the manufacturer and the surgeons. The Supreme Court holds that for the death which resulted from the use of the unfit ether both the manufacturer and the surgeons were responsible. The surgeons were held to be negligent in administering to a patient ether that was unfit for use and in their care after the ether was administered. (Jour. A. M. A., Sept. 11, 1920, p. 763.)

VALUE OF SCHICK TEST.

The Schick test, which can readily be applied to a large number of persons, makes it possible to differentiate those immune from those susceptible to diphtheria. It also facilitates the attempt to increase the number of the immune by suitable prophylactic toxin-anti-toxin injections. By the use of the Schick test and toxin-antitoxin injections, institutions have been kept free from cases of diphtheria for years. (Jour. A. M. A., Aug. 21, 1920, p. 545.)

FREE RADIUM BY THE STATE.

(A Statement by Dr. Harvey R. Gaylord,
from the American Society for the
Control of Cancer.)

The people of the state of New York will want to receive a statement on the stewardship of the purchase of $2\frac{1}{4}$ grams of radium for which \$225,000 was appropriated by the State, and announcement of which was made by Gov. Smith a few days ago.

I am very glad to take this opportunity both in the name of the Institute for the Study of Malignant Disease, the State and the American Society for the Control of Cancer, which supported this purchase, to say these words.

The experiment in state ownership, of a therapeutic agent, as exemplified in the purchase of this radium for social utility will have a far-reaching effect. This is a development of state medicine to which no one can object, and Gov. Smith deserves the thanks of the state for what he did.

"Any citizen of the United States," said Dr. Gaylord, "may avail himself gratuitously after October 15 of treatment with the $2\frac{1}{4}$ grams, valued at \$225,000, recently purchased by New York State, and the first gram of which was delivered by the Radio Chemical Corporation of New York last week. Preference, however, will be given to citizens of New York State."

"The first gram is now in the vaults of the Institute at Buffalo, and the appliances necessary for its use in the treatment of cancer are now in course of construction. The engagement of a competent physicist to work with this radium is also announced. The radium we are using is an American product, mined in Colorado, brought 2,900 miles across the continent in the form of 125 tons of carnotite ore to the extraction plant at Orange, N. J., where it was reduced by fractional crystallization to its present state.

"The first purchase of radium by any State," the doctor continued, "marks a step in the health activities of an American commonwealth. Up to the present we have had no therapeutic agents so expensive that they could not be afforded by the average practi-

tioner. In the case of radium that condition arises. The unit for efficient use costs not less than \$12,000, and represents 100 milligrams. A gram is worth \$120,000. The greater the quantity in an installation, the more efficient it is, and the less it costs per treatment. New York State has met this condition by purchasing an amount available for all its citizens.

"The value of radium has already arrived at a stage where States, and if necessary, the Government, should make radium available for cancer treatment, gratuitously, and beyond the realm of financial limitations. The advent of radium as a therapeutic measure is the most important forward step in the treatment of cancer.

"It is not surprising that when radium first made its appearance over-optimistic claims for its use and hope of its utility should have occurred. But that time is now past. Radium has been made available in smaller and larger amounts to all of the important centers of cancer research in this country, with the result that not alone has new knowledge of this agent been greatly advanced, but the technique of its use as well as its limitations have been more definitely defined. The last six years have marked steady progress in its application, and means of more scientifically and more efficaciously employing it have been developed.

"The State Institute as a result of carefully controlled scientific experiment in its hospital felt that the time had come when the State of New York should logically provide an adequate amount of radium for the Institute on the basis that its value is so definitely demonstrated that it should be made available without cost to the citizens of the State, and that the opportunities for research should now be extended along practical lines. The State Institute has had since 1914 an amount of radium sufficient for scientific study. Private philanthropy has given the Memorial Hospital in New York City a large amount of radium for scientific investigation and practical application for the past four years. The Cancer Research Commission of Harvard University has also had an adequate working supply. The advances made in these and in other quarters has steadily strengthened the

confidence in the use of this agent, and all of these centers are now seeking means to increase their supply.

The State of New York, which in 1898 took the lead by founding the first modern State cancer research institute in this country, should properly be made the first State to appropriate the necessary funds for the purchase of a sufficient amount of radium for the use of its citizens having available for this purpose a center of cancer knowledge and fully equipped scientific research laboratories where its use can be made immediately effective, and from which scientific progress can be confidently anticipated.

"The usefulness of radium in the treatment of neoplasms is still in its infancy, but there are already certain kinds of cancer in which its use offers advantages and the results obtained are an improvement upon any means we have heretofore possessed. It must, however, be remembered that our main reliance in the treatment of cancer is surgery, but radium in combination with surgery frequently greatly improves the prospective cure.

"The scientific development of the last two years in the use of radium, largely through the work of Prof. William Duane, of Harvard University, made available a means of using radium which has immensely strengthened its usefulness. This method is the use of the emanation of radium in place of the application of radium itself. This method is only available when you have at least one gram.

"Cancer today is one of the most important diseases in the United States. In increases 25 per cent every ten years.

"In the United States 90,000 deaths occur yearly from it, being of equal importance to tuberculosis. In New York State about 8,000 deaths occur yearly.

"The purchase of the radium has other significance than merely its use for the treatment of cancer. It gives an opportunity for research and its use under scientific conditions is sure to increase our knowledge of cancer. While surgery still remains our main reliance in the fight against cancer we can only hope greatly to improve the results of surgery by bringing the patient to surgical treatment at the earliest possible moment. This can only be accomplished by the diffusion of knowl-

edge among the laity of the first beginnings of cancer. It is with such work as this that the Society for the Control of Cancer has particularly charged itself. It is felt by the Society that the advent of an alternative will overcome the reluctance of many cases to present themselves to their physicians. The Society represents 900 physicians and laymen and looks with great interest at the purchase and congratulates New York upon the step it has taken.

"The purchase of this radium by an American commonwealth from an American company which has mined its ore in the State of Colorado will bring still further to the fore the pre-eminence of America in the treatment of cancer. Buffalo will become a radium center. While Europe, through Madam Curie, first made the precious element known to the world, the United States has developed both the ore, its extraction and its use as a therapeutic agent. It is today in the forefront of treatment of cancer. This purchase may have a tremendous effect upon further progress in this direction.

NEW AND NONOFFICIAL REMEDIES.

Sodium Arsphenamine; Sodium Asenphenolamine.—The sodium salt of 3-diamino-4-dihydroxy-1-arsenobenzene with a stabilizing medium. The arsenic content of three parts of sodium arsphenamine is equivalent to two parts of asphenamine. Sodium arsphenamine has the same actions and use as those of arsphenamine; its advantage over arsphenamine is that it does not require addition of alkali before use. To prepare the solution the sodium arsphenamine is added to the required amount of sterile water and dissolved by gentle agitation.

Sodium Diarsenol.—A brand of sodium arsphenamine. Sodium diarsenol is marketed in ampule containing 0.15 gm., 0.3 gm., 0.45 gm., 0.6 gm., 0.75 gm., and 0.9 gm., respectively. Diarsenol Laboratories, Inc., Buffalo, N. Y.

Corpus Luteum Tablets (Armour) 5 grain.—Each tablet contains 5 grains of desiccated corpus luteum (Armour). (See New and Nonofficial Remedies, 1920, p. 203, Jour. A. M. A., Sept. 18, 1920, p. 815.)

QUININ AND UREA HYDROCHLORID FOR LOCAL ANESTHESIA.

Quinin is a protoplasmic poison, and tissue necrosis may be caused by strong solutions of quinin salts. That this deleterious reaction actually does occur and has mitigated against the general use of quinin and urea hydrochlorid is confirmed by the report of the Committee of the A. M. A. on the advantages and disadvantages of local anesthesia in nose and throat work. The committee reported that the only local anesthetic that produces edema and sloughing is quinin and urea hydrochlorid. The committee found that, as this local anesthetic has been abandoned in other fields of medicine, so it has been discarded for use in nose and throat operations. Two physicians who had published articles extolling the value of quinin and urea hydrochlorid in nose and throat operations now state that they have discontinued its use, though they had not published this unfavorable conclusion. (Jour. A. M. A., Aug. 21, 1920, p. 559.)

ACCIDENTS DURING ANESTHESIA.

Dr. R. M. Waters, Sioux City, Iowa: "It is hope that this report of fatal accidents under anesthesia, with the lessons drawn, will enable others to avoid repetitions of similar catastrophes. Anesthetic mortality is much higher than usually supposed. Recently Dr. Stewart, of Cincinnati, compiled statistics of 10,7000 operations for removal of tonsils and adenoids, and found that 20 deaths had occurred in the series, being one death in less than 600 administrations. The statistics of an expert anesthetist may show a greater percentage of poor results than ordinary on account of the extreme number of hazardous risks handled. Among some 5,000 administrations during the past five years are included a goodly number of cases referred to me because doubt was present as to the advisability of using the routine anesthetist ordinarily employed. The five deaths occurring under anesthesia in my own experience have taught me the warning that every possible precaution must be taken in cases in which complicating disease has affected the heart

muscle. Such patients under ordinary methods of anesthesia are apt to die unexpectedly. It is absolutely necessary in such patients to use a high percentage of oxygenation with nitrous oxid or ether. The anesthetic apparatus again should be of such a character as to admit of immediate oxygen perfusion of the lungs under pressure in an emergency. Also in handling children and greatly enfeebled patients the apparatus used should make no additional respiratory demands nor allow for the excess accumulation of rebreathing. It should be remembered that patients may die of intense fear and also that worry about and dread of the anesthetic may delay digestion so that vomiting under anesthesia may cause death by the inspiration of vomitus into the trachea. In one such instance a piece of meat lodged in the glottic entrance and caused death in an intensely fearful subject before it could be removed. The possibility of respiratory obstruction from inhaled vomitus is increased in the semi-reclining position and diminished in the forward inclined sitting posture or in the horizontal position with the head low. Obviously also more fatalities are bound to occur from accidents under anesthesia in emergency than in properly prepared patients.—National Anesthesia Research Society.

PREVENTION OF GOITER.

The latest report on the prevention of goiter by administration of sodium iodid by Marine and Kimball—an investigation carried out under a grant from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry—indicates a striking difference between those girls not taking and those taking iodine. The difference is manifested both in the prevention of enlargement and in a decrease in the size of existing enlargements. Of 2,190 pupils taking 2 gm. of sodium iodid twice yearly, five have shown enlargement of the thyroid, while of 2,305 pupils not taking the prophylactic, 495 have shown enlargement of the thyroid. Of 1,182 pupils with thyroid enlargement at the first examination who took the prophylactic, 773 thyroids decreased in size, while of 1,048 pupils with thyroid enlargement at the first ex-

amination who did not take the prophylactic, 145 thyroids decreased in size. (Jour. A. M. A., Sept. 4, 1920, p. 674.)

NEW AND NONOFFICIAL REMEDIES.

Pollen Antigen-Lederle (Fall Type).—A liquid obtained by extracting equal parts of the pollen of ragweed, goldenrod, wormwood and maize. Each cubic centimeter contains 14,000 pollen units (a pollen unit is the equivalent of 0.001 Mg. of pollen). This liquid is made into fifteen different dilutions. The product is supplied in packages containing the fifteen dilutions (to be used for prophylactic treatment), in boxes containing five of the dilutions (series A, B and C, respectively), and in packages containing a single tube (for diagnostic use). Lederle Antitoxin Laboratories, New York.

Whole Ovary-H. W. D.—The ovarian gland of the cow, including the corpora lutea, freed from extraneous matter and dried in vacuo. For actions and uses, see general article on Ovary (New and Nonofficial Remedies, 1920, p. 201). Whole Ovary-H. W. D. is sold in the form of 5 grain tablets only. Hynson, Westcott & Dunning, Baltimore.

Benzyl Benzoate-Abbott.—A brand of benzyl benzoate (see New and Nonofficial Remedies, 1920, p. 49) complying with the N. N. R. standards. It is also supplied in the form of Elixir Benzyl Benzoate-Abbott and Benzyl Benzoate Tablets-Abbott, 2 grains. Abbott Laboratories, Chicago.

Benzyl Benzoate-Fritzsche.—A brand of benzyl benzoate (see New and Nonofficial Remedies, 1920, p. 49) complying with the N. N. R. standards. Fritzsche Brothers, Inc., New York.

Benzyl Benzoate-Merck.—A brand of benzyl benzoate (see New and Nonofficial Remedies, 1920, p. 49) complying with the N. N. R. standards. Merck & Co., New York.

Benzyl Benzoate-Organic Salt & Acid Co.—A brand of benzyl benzoate (see New and Nonofficial Remedies, 1920, p. 49), complying with the N. N. R. standards. Organic Salt & Acid Co., New York.

Ampules Ven-Iron Cacodylate.—Each ampule contains 0.03 Gm. (one-half grain) of ferrie cacodylate (see New and Nonofficial

Remedies, 1920, p. 44). Intra Products Co., Denver, Colo.

Diphtheria Toxin-Antitoxin Mixture (Gilliland).—Each cubic centimeter of diphtheria toxin-antitoxin mixture (see New and Nonofficial Remedies, 1920, p. 264) represents three lethal doses of toxin and approximately 3.2 units of antitoxin. Marketed in packages representing one immunizing treatment, and in packages containing ten treatments. Gilliland Laboratories, Inc., Ambler, Pa.

Gonococcus Glycerol-Vaccine (Lederle).—A suspension of killed gonococci in a vehicle of glycerol and physiological solution of sodium chloride. For a discussion of gonococcus vaccine, see New and Nonofficial Remedies, 1920, p. 283. Marketed in packages of fifteen vials, containing progressive amounts of the vaccine.—Jour. A. M. A., July 17, 1920, p. 177.

INTERNAL AND EXTERNAL ANTI-SEPSIS.

Despite the numerous efforts to demonstrate the efficacy of this or that chemical agent or drug as a gastro-intestinal antiseptic, the outcome has been that the supposed benefits were due to catharsis in most instances rather than to any real effect upon the bacteria in situ. Similarly, J. F. Norton, in an investigation made for the Council on Pharmacy and Chemistry, has shown that the value of "antiseptics" and "germicidal" soap depends on the soap, and not on the antiseptic or germicide contained in them. In fact, ordinary toilet soap and the green soap used by surgeons was more efficient, evidently because the added antiseptics and germicides interfered with the lathering qualities of the soap. (Jour. A. M. A., Aug. 14, 1920, p. 478.)

CHAULMOOGRA PREPARATIONS AND SODIUM MORRHUATE.

Chaulmoogra oil and preparations made from it are at present extensively employed and seem to produce amelioration in the majority of lepers to whom it has been administered persistently. Investigation has shown substances that are one hundred times more active than phenol, and that this bactericidal

action is specific for the acid fast group of bacteria to which the causative organism of leprosy belongs. The product is inactive against all other organisms studied. On the other hand, it has been shown that sodium morrhuate and the fatty acids of cod liver oil do not have a similar action in tuberculosis, which is also due to an acid fast bacterium. The value of chaulmoogra preparations in tuberculosis remains to be demonstrated, and their clinical trial should await their experimental investigation. The indiscriminate use of drugs in tuberculosis may arouse false hopes and may not be without danger to the patient.—*Jour. A. M. A.*, June 5, 1920, p. 1578.

WARNING AGAINST UNTRIED MEDICAMENTS.

The United States Public Health Service has issued a circular regarding the use of arsenic preparations in the treatment of syphilis, in which it invites attention to the extensive exploitation of various arsenic preparations which are not related to the arsphenamine group. It is held that the subcutaneous, intramuscular or intravenous use of arsenics in the treatment of syphilis should be confined to the arsphenamine group, as these agents are now of established value and are produced under the supervision of the Public Health Service.—*Jour. A. M. A.*, June 12, 1920, p. 1654.

A SHOTGUN MIXTURE.

It is stated that the following prescription is used with success in "intestinal cases of a medical type:" Zinc sulphocarbolate, 0.5; bismuth subnitrate, 15.0; bismuth betanaphtholate, 8.0; camphorated tincture of opium, 15.0; syrup of acacia, 30.0; elixir lactopeptine, to make 130.0. In this, the chief active ingredients are bismuth subnitrate and camphorated tincture of opium. The zinc sulphocarbolate is superfluous. The action of the bismuth betanaphtholate probably does not differ from that of bismuth subnitrate, and cinnamon water or simple elixir might as well be substitute for elixir lactopeptine.—*Jour. A. M. A.*, July 31, 1920, p. 335.

MORE MISBRANDED DRUG PRODUCTS AND NOSTRUMS.

The following products have been the subject of prosecution by the federal authorities under the Food and Drugs Act: Seelye's Wasa-Tusa, Dr. Seelye's Compound Extract of Sarsaparilla, Seelye's Laxa-Tena, Seelye's Cough and La Grippe Remedy, and Seelye's Fluorilla Compound (A. B. Seelye Medical Company) were misbranded because the therapeutic claims were unwarranted. Aspirin tablets (Veranda Chemical Company) were disbranded because they contained no acetylsalicylic acid (aspirin). Dr. Grove's Anodyne for Infants (Smith, Klein & French Company) was misbranded because the therapeutic claims were unwarranted, and because the carton failed to contain a statement of the quantity and proportion of morphine and alcohol contained therein. Cacapon Healing Water (Capon Springs Company) was adulterated in that it consisted in part of a filthy, decomposed and putrid animal and vegetable substance and misbranded because the curative claims were unwarranted. Seawright Water (Seawright Magnesian Lithia Spring Company) was adulterated in that it consisted in part of a filthy and decomposed vegetable substance.—*Jour. A. M. A.*, July 24, 1920, p. 261.

BENZYL BENZOATE.

The chemical properties of benzyl benzoate have been known for years. Its therapeutic properties as an anti-spasmodic have been known only a short time. Before this new addition to our material medica can be given thorough clinical trial, it is necessary that the products be of a quality sufficiently pure for medicinal use. For the physician's protection, as well as for an aid to the manufacturer, the A. M. A. Chemical Laboratory, at the request of the Council on Pharmacy and Chemistry, has elaborated purity standards. It has also examined the market supply and found that, on the whole, the nonproprietary medicinal brands are of a satisfactory grade for clinical use.—*Jour. A. M. A.*, July 31, 1920, p. 335.

LIST OF LOCAL REGISTRARS**(Continued).**

McNairy County.—Civil District No. 1, Dr. M. C. Key, Ramer; Civil District No. 2, J. E. Dunnaway, R. 1, Selmer; Civil District No. 3, J. H. Manees, Bethel Springs; Civil District No. 5, Dr. J. R. Davis, Gravelhill; Civil District Nos. 6, 13 and 7, Dr. J. L. Smith, H. L. Jones, R. 1, Jackson; Civil District No. 11, Dr. R. L. Greer, Norwood; Civil District No. 12, Thos. E. Askew, Spring Creek; Civil Districts Nos. 13 and 17, Dr. C. A. Chaffee, Beech Bluff; Town of Jackson, Civil District No. 15, outside of Jackson, and Civil Districts Nos. 15, 14 and 18, Dr. W. G. Saunders, Jackson; Civil District No. 16, Mrs. C. P. Allen, Humboldt.

Marion County.—Civil District No. 1, Mrs. E. C. Norvell, Tracy Ctp; Civil District No. 3, J. F. Doss, Guild; Civil District No. 4, Harry Allen, Kimball; Civil District No. 7, Mrs. W. J. Hampton, Jasper; Civil District No. 8, E. Graenicher, Monteagle; Civil District No. 9 (now 4th); J. C. Raulston, Lodge; Civil District No. 11, James Newsom, St. Elmo; Town of Pittsburg, Civil District No. 14, C. Baumgartner, South Pittsburg; Civil Districts Nos. 2, 3 and 15, G. A. Bradfield, Whitwell; Civil District No. 5, D. C. Shelton, Jasper.

Marshall County.—Civil Districts Nos. 12, 13, 14 and 15, Dr. S. T. Hardison, Lewisburg; Civil Districts Nos. 5, 6 and 7, Fred Ramsey, Farmington; Civil Districts Nos. 8, 9, 10, 11 and 15, Herbert Brown, Lewisburg; Civil Districts Nos. 1, 17 and 18, R. L. Taylor, Cornersville; Civil Districts Nos. 2 and 3, Dr. L. L. Murrey, R. 6, Lewisburg; Civil District No. 4, Mrs. C. P. Marsh, Petersburg.

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INDUSTRIAL RESEARCH LABORATORIES IN AMERICA.

A bulletin just issued by the National Research Council lists more than three hundred laboratories maintained by industrial concerns in America, in which fundamental scientific research is carried on. The bulletin gives a brief account of the personnel, special equipment and particular kind of research carried on in each of the laboratories listed.

Industrial research laboratories have increased notably in number and activity, both in America and Great Britain, since the beginning of the war, because of the lesson vividly taught by the war emergency. It was only by a swift development of scientific processes that the Allies and America were able to put themselves in a position first to withstand and then to win a victory over Germany's science-backed armies and submarines. And it is only by a similar and further development that America and the Allies can win over Germany in the economic war-after-the-war, now being silently but vigorously waged.

BOOK REVIEW.

GENITO-URINARY DISEASES AND SYPHILIS. By Henry H. Morton, M. D., F. A. C. S., Clinical Professor of Genito-Urinary Diseases in the Long Island College Hospital; Genito-urinary Surgeon to the Long Island and Kings County Hospitals and the Polhemus Memorial Clinic; Member of Committee on Venereal Diseases in the Office of the Surgeon-General; Consulting Genito-urinary Surgeon to the Flushing Hospital, to the Sea View Hospital of Department of Health,

New York City, to the Bushwick Hospital, and to the Beth Israel Hospital of Newark, N. J.; Member of the American Urological Association; Member of the American Association of Genito-urinary Surgeons; Fellow of the American College of Surgeons; Fellow of the New York Academy of Medicine, etc. Fourth edition, revised and enlarged, with 330 illustrations and 36 full page colored plates. St. Louis: C. V. Mosby Co. 1918.

This book is a great advance over the former editions and takes its place among the leading American works in the field of genito-urinary diseases and syphilis. Comprising some eight hundred pages, the various subjects are found fully, though not too extensively discussed. The text is amplified by a large number of excellent illustrations, many of them original drawings, others, well selected, being copied from other works. The chapter on "Gonorrhea in Women" is written by Dr. Albert M. Judd; the chapter on the "Wassermann Reaction" is written by Dr. Alfred Potter, and Dr. John H. Burke writes the section on "Bacteriology of the Gonococcus." The newer methods of treatment and diagnosis by means of pyelography, x-ray, radium and other recent additions to the armamentarium of the urologist are fully presented. The work merits the continued approval of the profession.

SYPHILIS. A Treatise on Etiology, Pathology, Diagnosis, Prophylaxis, and Treatment. By Henry H. Hazen, A. B., M. D., Professor of Dermatology and Syphilology, Medical Department of Georgetown University; Professor of Dermatology and Syphilology, Medical Department of Howard University; Member of the American Dermatological Association and National Association for the Control of Syphilis; Visiting Dermatologist and Syphilologist to Georgetown University Hospital, Freedmen's Hospital, Washington Asylum Hospital and Woman's Evening Clinic; Author of "Diseases of the Skin," "Cancer of the Skin," etc. With 160 illustrations, including 16 figures in colors. St. Louis: C. V. Mosby Co. 1919.

The book is really a condensed encyclopedia on syphilis, both in the completeness of topics covered and the number of writers who have contributed chapters on various subdivisions of syphilis. Reference to more extensive articles on the subjects treated are found at the end of each chapter. This is especially time saving for the man who wants to go into the subject further. The illustrations are well selected and instructive. Printing is clear and the general get-up of the book is excellent. For a single volume, that covers syphilis in all its phases, in all regions of the body, this work can be well recommended.

PASTEUR—THE HISTORY OF A MIND. By Emile Duclaux, Professor at Sarbonne and Director of the Pasteur Institute. Translated and edited by Erwin F. Smith and Florence Hedges, Pathologists of the U. S. Department of Agriculture. 363 pages, illustrated. W. B. Saunders Co.: Philadelphia.

One opens this book, about one of the greatest of all human benefactors, with a profound sense of reverence. To read of Pasteur, his work, his thoughts, his methods; and then to compare these with the work, thoughts and methods of his contemporary scientists is indeed a treat. The book, by Duclaux, one of Pasteur's students, and later his assistant, and then director of the Pasteur Institute, is written in pleasing style. Duclaux speaks of the various problems which arose in Pasteur's laboratory in the most matter of fact way, as if they were simple questions that could be answered in the knowledge of the day. How different were the facts! Instead of being simple, the problems were of the most complex nature, and involved research in fields as yet untrod by man. Yet, in Duclaux is found a man who happily has the human touch and understanding to present the facts as developed by Pasteur's mind in such logical manner as to lead one to admire the writer almost as much as the man written of. Commencing with Pasteur's work on crystallography, we follow him into the fields of investigation on fermentation, spontaneous generation, work on wines and vinegars, diseases of the silk worm, studies on beer, the etiology of microbial diseases, and, finally his studies on viruses and vaccines. The subject-matter is not arranged in chronological manner as regards the discovery of new facts. Duclaux tells of the **mind** of Pasteur and, in his telling, spans a number of years and then jumps to another period. Studies on rabies are covered in five brief pages, and one feels a sense of disappointment that there is not more, but the facts leading up to the work on rabies are covered in other periods. And, too, the lessons learned from the work on rabies are applied in further studies on viruses and vaccines. An introduction by the translators gives a brief biography of Duclaux, in which one is made to feel his wonderful personality. An annotated list of contemporary scientists and other persons mentioned in the book, as well as a number of photographs of Pasteur, are included. This book should be read by every physician. It will give inspiration well worth experiencing.—H. S.

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UTERINE FIBROIDS.*

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ical Department, Vanderbilt Uni-
versity, Nashville.

In assuming to discuss a subject so trite as uterine fibroids it would seem that any remarks should be prefaced by an apology. Within the immediate past little, if anything, has been added to the sum total of medical knowledge concerning these neoplasms. However, renewed interest has been stimulated by the advent of certain therapeutic measures, viz.: x-rays and radium. In the hands of some these remedial agents have, to a large extent, supplanted surgery in the treatment of certain types of uterine fibromata. With a view of discussing some features of this phase of the subject, a prefatory review of uterine fibroids in general is deemed not out of place, although such a discussion is necessarily somewhat academic.

The general term, uterine fibroids, relates to any more or less fibrous tumors springing from the uterine wall. A more refined and descriptive nomenclature is introduced in such terms as myomata, fibromyomata, fibroma, leiomyomata (Mallory) and adenomyomata, these terms seeking to indicate more clearly the histological structure.

The last named type—viz., adenomyomata—deserves special consideration. Histologically these tumors are characterized by the dif-

fuseness of their growth, not being encapsulated as other types of fibroids usually are, and containing certain glandlike structures lined with epithelium very similar to those of the endometrium. Von Recklinghausen believed these tumors had their origin in foetal rests from the Wolffian body. In fact, he demonstrated in some of his specimens structures very similar to the convoluted tubules and glomeruli of the kidney. Later it was shown by R. Meyer, Cullen, and Opitz, that in many of these tumors the glandular elements are derived from the uterine mucosa. In certain subserous types the contained epithelial cell may be derived from the peritoneum. However, the idea that those tumors occurring in the parametrium have their origin in embryonal rests is still entertained. These are usually encountered in the posterior uterine wall, although they may occur elsewhere, occasionally even in the cervix. They are always of small size and quite diffuse in their growth. At times it is difficult to distinguish the neoplasm from uterine tissue. In 1283 myomas of the uterus reported by Cullen, 73, or 5.7 per cent, were of this variety. In 3,388 cases reported by the Mayo Clinic there were 211, or 6.43 per cent, of this type. Hence it appears that we are safe in saying these tumors constitute from 5 to 7 per cent of all uterine fibroids. Myer describes a condition closely resembling these growths which is in reality merely a circumscribed inflammatory hypertrophy of the uterus, and to which he has given the name of "adenomyositis," caused most probably by chronic pelvic infection. Adenomyomata rarely give rise to marked symptoms other

*Read at annual meeting of Tennessee Medical Association at Chattanooga, April, 1920.

than metorrhagia and menstrual pain. Fortunately they are not prone to undergo malignant change. (Graves.)

It has been a time-honored custom to classify all fibroids from a locational standpoint into three general classes: Subserous, intramural and submucous. To these may be added intraligamentous and retroperitoneal types. Fibroids are designated as sessile or pedunculated according to the manner of growth. The latter, when separated from the original attachment by severance of the pedicle, gives rise to the so-called parasitic, floating, or wandering fibroid. Fibroid tumors are usually multiple and of unequal size. The larger the growth the more apt is the fibrous tissue to predominate and, conversely, the smaller the growth the greater probability of preponderance of muscular tissue. About 8 per cent occur in the cervix.

The causation of these tumors is shrouded in the same mystery that envelops most other neoplasms. With the exception of the adenomyomatous type nothing very definite can be said. From a histogenetic standpoint they have been variously ascribed to the uterine muscularis, to the connective tissue of the uterus, to the walls of the blood vessels, and to embryonal rests. All are agreed that they are relatively more frequent in negro women. According to Graves, the function of menstruation is the most important definite factor in their causation, since they only develop during that epoch. Women who have not borne children are somewhat more susceptible than parous women, and women who have borne one or two children in early life, followed by a long period of sterility, are more susceptible than women who have borne a number of children.

That these tumors are of very frequent occurrence is shown by the experience of all who have occasion to examine many women. It is stated that 40 per cent of all women have fibroids, while nearly all women of single age have them (Graves). While this statement appears to me to be a little extreme, it nevertheless serves to indicate the extreme prevalence of this condition. According to Stacy, of the Mayo Clinic, uterine myomata occur in 20 per cent of all white women who have

reached the age of 35. In 323 cases of myomectomy the average age of the patients was 37+ years; the youngest patient 25 years of age, and the oldest 59 years of age. The greatest age frequency is probably in the third decade of life, but most patients seek relief in the fourth decade. It is the opinion of most observers that the development of new tumors after the menopause is extremely doubtful.

A very large percentage of fibroids give rise to absolutely no symptoms and their possessors may be unaware of their presence. They may remain quiescent for long periods, and suddenly take on rapid growth. On the other hand, occasional regressive changes may occur, and cases have been observed in which the tumor has apparently disappeared. The most common symptom is uterine bleeding, which manifests itself by a more profuse flow during the periods, and often a prolongation of the flow beyond the usual menstrual habit. Not infrequently clots are associated, and in severe cases metorrhagia is prone to occur. Any type of fibroid may give rise to these symptoms, but they are most commonly associated with the submucous variety. At times dysmenorrhea is present, and may be distressing. Bleeding may give rise to severe grades of secondary anaemia in which the hemoglobin may be reduced to as low as 10 per cent. Other symptoms of fibroid tumors are, as a rule, due to pressure, hence the location and size of the growth assume considerable importance. Extremely large tumors may grow in such a manner as to cause but slight pressure, therefore giving rise to few or no symptoms. Conversely, a very small tumor, because of its location, may produce extreme discomfort and even distress. It is not expedient to discuss in detail the various pressure symptoms which may occur; suffice it to say that these may be referable to the urinary bladder, rectum, pelvic veins, sciatic nerves, etc. Pressure symptoms occur much less frequently than one would expect, considering the character of these growths. Very large tumors may produce dyspnoea, cyanosis, and palpitation because of their size and weight. When a fibroid which has been hitherto quiescent or almost symptomless sud-

denly gives rise to severe symptoms, it is most likely due to a degenerative change, or some accident in connection with the growth, such as torsion or infection. The latter may be blood-borne or the result of direct extension from a continuous structure, such as the appendix, the tube, or the bowel.

The diagnosis of uterine fibroids in the majority of cases is not difficult. If the tumor is of the hard, irregular type, and uncomplicated, little chance of error exists. However, it is to be said, since other pelvic conditions are frequently coincident with the growth, that at times a full appreciation of the pathology with which one is dealing becomes exceedingly difficult, if not impossible. Advanced carcinoma of the body of the uterus and edematous symmetrical fibroid are sometimes almost indistinguishable. In doubtful cases complete hysterectomy should be done. It has been the experience of almost every surgeon that at some time, upon opening the abdomen, he has been confronted with considerable uncertainty as to whether the pathology with which he was dealing was that of a diffuse symmetrical fibroid or merely a pregnant uterus. In such cases the history is of great importance, although not entirely reliable, since fibroids are sometimes associated with temporary amenorrhea. Other incidental signs of value are the condition of the breasts and the consistency of the cervix. The latter sign may be misleading if laceration with eversion is present. The color of the pregnant uterus is rather purplish, while fibroids tend to more of a pinkish hue. A large recent corpus luteum is suggestive of pregnancy. While none of the above points are infallible, their sum total will usually direct the surgeon along the proper path.

Degenerative changes are particularly prone to occur in uterine myomata, because of the scant blood supply, and also because of the essential nature of the growth. As enumerated by Graves, these are as follows: Hyaline degeneration, which is of little clinical importance and is seen in some parts of nearly all fibroids; changes due to passive congestion, which results in a surcharging of the tumor with the watery constituents of the blood, giving rise to three separate types,

viz., simple edema, myxomatous change, and cystic formation. In the first type the growth becomes large and soft, and is the chief cause for the sudden rapid growth which fibroids sometimes exhibit. The second type, myxomatous change, is a misnomer, since true myxomatous cells are not present, the condition being simply an advanced form of the first type. Cystic degeneration occurs when the fluid is confined to definite areas within the tumor mass. These at times coalesce and form cavities of considerable size. Cysts may also have their derivation from the blood and lymph vessels. They may also result from liquefaction necrosis of the tumor itself. A form of degeneration not very well understood has been characterized as red degeneration, which occurs in two forms, thrombotic and angiomatous, the latter showing free blood on the cut surface, and numerous thin-walled blood vessels. Red degeneration is apt to occur during pregnancy, and is easily infected, giving rise to constitutional symptoms. Pregnancy also seems to strongly predispose to fatty degeneration. Necrosis may occur at any time, either due to interference with the blood supply, infection or torsion. Calcification at times occurs as a result of the deposition of lime salts. Sarcomatous change usually begins at or near the center of the tumor, and usually develops in long-standing cases and after the menopause. Its incidence is variously estimated from one to five per cent. In passing it may be stated that the microscopic differentiation between certain types of fibroid and sarcoma is fraught with great difficulty, and not infrequently almost impossible. Adenocarcinoma of the endometrium is sometimes associated with fibroid. It is, however, coincident and not a carcinomatous condition of the fibroid itself. It is stated that 64.9 per cent of fibroids show degenerative changes, and that these changes are most apt to occur after the fortieth year, a time when it was once thought that these tumors were likely to diminish in size (Samuels, quoted by Keen). This percentage seems a little high. In a large series of cases in the Mayo Clinic, 17.8 per cent were found to be undergoing degenerative changes at the time of operation.

That fibroids and pregnancy should be co-

incident in the same patient is unfortunate, since they tend to exert an untoward effect on each other. During pregnancy fibroids may not only take on increased growth, but seem to be rendered more liable to degenerative changes, with all of their incident dangers. On the other hand, fibroids tend to produce abortion, and, if full term is reached, often constitute a serious menace to delivery, as a result of mechanical obstruction. They may also constitute a serious embarrassment to normal uterine contractions. Statistically, it is shown that 2.6 per cent of fibromatous women become pregnant (Stacy, Mayo Clinic). Shanta states that as a rule these patients do not become pregnant, and that, when they do, they abort. There are obvious exceptions to this rule, however, since every obstetrician of any experience has at times delivered women afflicted with a fibroid uterus of full term progeny.

The rational treatment of uterine fibroids resolves itself into surgery, x-ray, and radium, or some combination of them. Drug treatment of any type has proven so unsatisfactory so far as cure is concerned that it should be regarded as palliative.

Of the operative procedures myomectomy or hysterectomy may be considered. Some years ago the former operation became quite popular, but later gave way almost universally to the latter procedure. Recently there has again been a tendency toward myomectomy in certain carefully selected cases. The underlying reasons for this will not be discussed at this time. Personally I am strongly inclined toward hysterectomy as being the ideal procedure in operative cases, although I am prepared to admit that in certain well selected cases myomectomy may yield most satisfactory results.

I have had no experience with the treatment of uterine conditions by radium or x-ray, and what is here said is based on a perusal of the literature in an effort to become acquainted with their indications and limitations, and is presented solely for the purpose of eliciting discussion.

In 1905 Dr. Robert Abbe stated that he had successfully treated a large fibroid uterus with radium. His statement was received with great skepticism by many and stimulated

much investigation and experimentation, with the result that at the present time the literature is teeming with cases of fibroid tumors treated both by x-ray and radium, in many of which symptomatic cures are claimed and in a few of which total disappearance of the tumor is said to have occurred. The mass of clinical material showing such gratifying results and presented by men of unimpeachable professional integrity indicates clearly that in radium an exceedingly valuable remedial agent has been developed, and one which is destined to play an important role in the management of certain types of cases.

Radium seems to possess, as far as its action on the uterus is concerned, all of the desirable properties of the x-ray in an increased degree and to be devoid of its disadvantages save one—cost. The action is explained on the basis that some effect is exerted on the follicles of the ovary which, according to our present knowledge, preside over the menstrual function, and clinically it appears that the effect may be merely a temporary inhibition or permanent destruction, according to the dosage and the technique employed. It is further stated that direct changes are brought about in the tumor itself, chief of which is an obliterative endarteritis. To the ischemia following this has been attributed the decrease in size of the tumor and the cessation of hemorrhage. That the activity of an over-functionating endometrium can be readily controlled is shown by the production of amenorrhea. By some it is claimed that the endometrium may be practically destroyed.

Kelly and Burnham are among the strongest exponents of the radium treatment of fibroids, and have from time to time given a clear insight into their work, with a complete discussion of the cases treated, the determining factors in their selection, and the results obtained. Hence their conclusions represent to a fair degree the claims of radium in this particular field. Kelly states that these tumors possess three striking characteristics:

1. They can nearly always be labeled benign.

2. They usually give trouble either from pressure upon neighboring organs or from hemorrhage, which is common.

3. The incidence of malignancy is small and the presence of malignant change can almost always be excluded by a thorough curettage and the microscope.

Coincident pathology, such as adnexal disease, appendicitis, gall stones, gastric ulcer, etc., are revealed through the medium of careful histories and painstaking physical examinations. Marked degenerative changes and complicating pathology will give rise to pain or some disturbance of function, which in the vast majority of cases will enable one to determine whether he is dealing with a simple fibroid or not.

He dogmatically asserts that in selected cases as indicated radium accomplishes:

1. Control of hemorrhage and the checking of menstruation.

2. The shrinkage of the tumors.

3. In many instances the disappearance of the tumors.

4. In some cases (even after two years) the return of menstruation, either normal or scanty.

Two hundred and ten consecutive cases are reported without mortality, twenty-one of which were bad operative risks because of tuberculosis (2), nephritis (4), heart disease (9), profound anemia (4), diabetes (1), or bronchiectasis (1). One hundred and forty-six were forty years of age, or over, and sixty-four were under forty years of age.

In addition to the two hundred and ten radium cases forty-five other cases were admitted to the hospital and operatively treated for the following reasons:

Ovarian cysts -----	9
Appendicitis -----	7
Pelvis choked by big tumor, and intra-uterine radiation impossible -----	6
Severe pain -----	5
Adhesions -----	4
Operation preferred -----	4
Myomectomy to preserve the uterus, menstruation, and the possibility of conception in young women -----	2
Gall stones -----	2
Pelvic inflammatory disease -----	1
Caesarean section -----	1
Right inguinal hernia -----	1
Prolapse -----	1
Extra-uterine pregnancy suspected -----	1
Total -----	45

Of the two hundred and ten radium-treated cases the average age was forty-three, the oldest sixty-seven, and the youngest twenty-six. Fifty of the cases did not present bleeding as a symptom. The results were as follows:

	Cases.
Tumor gone, or practically gone -----	94
Tumor diminished -----	64
Symptomatically well -----	13
Unimproved (one complicated) -----	2
Operation after radiation -----	9
Died from other causes -----	2
Did not complete treatment -----	6
No report -----	7
Too early for report -----	13
Total -----	210

The menstrual flow seems to be the best index in most cases as to the success of the treatment. If menstruation is not stopped by radiation, or if it returns before the fibroid is gone, the tumor will probably continue to grow. In the latter cases a continuation of the treatment will check the growth. Kelly says that he has never seen a tumor grow during a radium amenorrhea. All workers are agreed that the nearer the patient is to the menopause the easier it is to produce and maintain amenorrhea. Small tumors are more promising than large ones. By some, tumors larger than a two or three months pregnancy are not treated by radiation.

This in brief seems to me to constitute a fair criterion for the results which may be claimed for radiation of fibroid tumors of the uterus. It is obvious that the results will in a large degree depend upon the skill and ability shown in separating seriously complicated cases from simple uncomplicated cases. While Kelly apparently finds this fairly easy in average hands, I am of the opinion that it could not be so accurately determined. Almost certainly at times serious mistakes along this line will occur. Furthermore it is obvious that sufficient time has not yet elapsed in these two hundred and ten cases to definitely state what the ultimate outcome will be. It would be interesting to know what the cause of death in each of these cases will be.

Turning to the operative treatment, as a result of the perfection of modern technique for abdominal hysterectomy the mortality in

general hands is certainly not more than two per cent and the results are exceedingly good. It is true that some cases will have protracted convalescences as a result of post-operative suppuration, adhesions, herniae, and occasional prolapse of the vagina, but the number of such cases are hardly as great as those who would have to return for further radiation under that plan of management, to say nothing of those who in the end would have to submit to operation. Kelly had nine of these. So far as the wear and tear on the patient is concerned, it appears that there is small difference.

The vast majority of surgeons still consider the operative treatment the method of choice, and have set apart certain types of cases for the radium treatment. In general it may be stated that no case should be subjected to radiation when there is the slightest suspicion of malignancy. In doubtful cases the history and diagnostic curettage are relied upon to clear up the diagnosis. Women presenting large soft myomata which are apt to undergo degeneration are best treated by operative measures. Complicated fibroids, or those coincident with other serious forms of pathology, such as adnexal disease, appendicitis, gall stones, etc., are surgical. The tendency of most surgeons is towards operation in women past forty years of age. Radium seems to give excellent results in young women who have small tumors in which hemorrhage is the chief symptom, and when it is desired to preserve the child-bearing function. It should be used in cases with severe secondary anemia, where if not curative it will at least serve to prepare the patient for operation. Radium undoubtedly offers a great deal to cases with operative contraindications, such as cardiac or renal disease, high blood pressure, etc.

From the foregoing it appears that in radium we have a distinct and valuable adjunct in the management of fibroid tumors of the uterus, and that at present its indications and limitations cover a definite group of cases which in the near future may be considerably enlarged as the technique of application is rendered more perfect, and its action,, both

immediate and remote, becomes better understood.

DISCUSSION.

Dr. J. M. King, Nashville, Tenn.: Dr. Tigert in his paper has laid great stress upon the effects of radium, but I do not think we are in a position to say that we obtain any better results from radium than we get from the x-ray. The only difference, in my opinion, is this: In the application of radium you may be able to apply it more directly to the structures involved, while the x-ray must be applied through the body wall. With the Coolidge tube all that may be desired is obtained with the x-ray.

Dr. W. C. Dixon, Nashville: The doctor has been eminently fair in his presentation of this subject, in my opinion, except I think he is rather partial to the application of the radium elements in his treatment. I think Dr. King is correct in saying that we do not have to wait until we have the radium in our possession. I think it is generally conceded that the x-ray has the same effect as radium, and it is only a question of our application of it. Now, with regard to the treatment with the x-ray or with radium, I think it is but fair to say that they are free from danger—that is, that the treatment with the x-ray and radium are comparatively harmless. In the majority of cases, that is true. On the other hand, there is a certain percentage of cases that are treated by the x-ray and radium—probably more than from the use of the x-ray—that leave very serious complications, or rather that serious complications develop. For instance, in the use of radium there is always danger of a vesical or rectal fistula. That is something that we all wish to avoid. Whether the x-ray or radium will cure fibroids, I don't believe any one at the present time can say. We can read in the literature of numerous cases, reported by very competent men, where they state that the tumor has decreased in size and some that the tumor has disappeared. Of course, whether they will return, only time can tell. In many reports in the literature a cure has been counted when the woman ceases menstruation and the tumor decreases in size. In other words, we consider a tumor cured, when oftentimes it is not cured. A tumor may not show bleeding at a certain time, but may bleed later on, and it may develop some serious complications.

Hysterectomy is a very well defined procedure, and there is a very low mortality from it. I think that while the x-ray and radium should be applied in the treatment of fibroids, that their use should not be too frequent. I think that while the x-ray and radium may be applied successfully, yet hysterectomy is more definite from the fact that in the application of the x-ray and

radium the abdomen is not opened and you cannot see exactly what you are doing.

I have seen hysterectomy performed successfully with only 25 per cent of hemoglobin. I believe that x-ray and radium are largely an experiment, and while I think they may be used, I think they should be used with great care, as I believe in some cases that that treatment would do more harm than good. I believe that there are cases where much better results can be obtained surgically, because there you open the abdomen and you can see exact conditions and act accordingly.

Dr. H. M. Tigert (closing): I am very grateful for the discussion. The object in bringing this subject before you was to compare the relative merits of the management of uterine fibroids by radiation and by operation.

With reference to Dr. King's remarks: My belief is that x-ray will attain the same results as radium, the chief difference being that it requires a long time, perhaps several months, and repeated application to accomplish with x-ray what can be done with radium in a short time, with very few exposures. Experienced radiologists report very favorable results on fibroids of the uterus after one application, and that it is seldom necessary to resort to more than three exposures.

Frequent references are made to the complications of the operative treatment, such as infection, prolapse of the vagina, etc., following hysterectomy. In this connection it seems only fair to state that serious burns may occur after the use of radium. Naturally this is more prone to occur in the hands of the inexperienced. Such burns may give rise to various types of fistula. By proper application of radium, the child-bearing functions may be preserved, as shown by numerous case reports in which women have borne children after treatment of fibroid conditions of the uterus with radium.

In young women menstruation is usually suspended for some months after radiation, and in women near the menopause it is apt to be permanent.

From the literature it appears that in radium a valuable agent has been developed for the management of a small definite group of cases of uterine fibromata, but it seems to me that the vast majority of such cases should be regarded as surgical, and that properly selected surgical cases will yield a more gratifying result than those treated by any other method.

A proper understanding and co-operation between surgeons and radiologists will bring about a better conception of the indications for each form of treatment, and result in further alleviation for women suffering with this malady.

THE DIETETIC AND MEDICAL TREATMENT OF GASTRIC AND DUODENAL ULCERS.*

By Seale Harris, M. D.,
Birmingham, Ala.

Ulcers of the stomach and duodenum are undoubtedly at times conditions which are amenable only to surgery; but after fifteen years of experience in which I have treated nearly one thousand cases I am convinced that the great majority of cases are cured medically. The pessimistic viewpoint of surgeons regarding the curability of gastric and duodenal ulcer comes from the fact that they see only the advanced cases, and they have referred to them for operation the patients in whom there are complications; while the physician usually treats and cures the mild and uncomplicated cases.

Friedenwald and other gastro-enterologists of large experience report seventy-five per cent of gastric ulcers cured by medical treatment. My results accord with these reports. In my experience, which is not different from others engaged in the same line of work, the serious complications of gastric and duodenal ulcer have been infrequent and the results from the dietetic and medical treatment so favorable, that I believe this method should always be faithfully tried before surgery is considered. Every other gastro-enterologist whose views I have heard holds to the same opinion.

Results from Gastro-Enterostomy.

It has been my misfortune to see many cases in which gastro-enterostomies had been performed without benefit to the patient, or in which there had been temporary relief but recurrence of the symptoms. I am therefore convinced that there are as many recurrences after operations for the relief of gastric and duodenal ulcers as after medical treatment.

Gastro-enterostomy does not place the patient in any better condition for a cure than medical treatment, except when there is very marked organic stenosis of the pylorus, hour-glass stomach, or when there are adhesions

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which prevent gastric peristalsis. Cannon and Blake have proved that gastro-enterostomy is not a drainage operation, that with a patent pylorus the food passes through the natural channel, and but little goes through the stoma. Just how much the opening of the stomach into the jejunum perverts gastric and intestinal function we do not know; but examinations of the stomach contents of my patients who have had gastro-enterostomy performed have shown in nearly every instance the presence of bile and other intestinal contents. One patient, who had a gastro-enterostomy ten years before he came under my observation, had bile present in his stomach at each of several examinations, when fasting, and after the Ewald test meal.

Cohnheim observed a deficiency of mucus in the stomach contents of patients with gastric ulcer, and he suggested that the pain of the ulcer was due to the lack of mucus, thus permitting the hydrochloric acid, which is usually excessive in ulcer, to act upon the exposed nerve terminals. It has occurred to me that the relief of pain after gastro-enterostomy was due to the regurgitation of bile and intestinal mucus, coating over and protecting the ulcer in addition to neutralizing the hydrochloric acid in the stomach. The same result can be accomplished by diet and by the administration of alkalies without permanent perversion of gastric function and without submitting the patient to a serious operation.

I know of no operation in surgery that gives more brilliant results when indicated than gastro-enterostomy, and I know of none which is more abused. This operation should never be performed without a thorough knowledge of the motor and secretory functions of the stomach; and after entering the abdomen, if the pylorus is found patent or gastric peristalsis is not interfered with by adhesions, the wise surgeon does not perform a gastro-enterostomy but examines the gall bladder, pancreas and appendix. It goes without saying that no surgeon would perform a gastro-enterostomy without being able to demonstrate positively the presence of a gastric or duodenal ulcer.

Co-operation of Surgeons and Physicians.

Surgeons and gastro-enterologists should not be lined up against each other like opposing football teams, but should work together, each recognizing the fact that there is a field for the other in the treatment of gastric and duodenal ulcer. It is only by team work that the best results are obtained. Even when the operation is performed, as soon as all danger from the operation is over, the ulcer patient should be under the care of the medical man, who is best prepared to prescribe the proper diet and regimen for the patient to prevent recurrences.

I am convinced that one of the reasons for the frequent failure to cure ulcer after operation has been the errors in diet as prescribed by some surgeons. I have been astounded by the diet that has been prescribed to patients after gastro-enterostomy by some of the leading surgeons of the country. I have known such patients to be permitted to get out of bed in ten days and a full diet allowed after two weeks.

It may be appropriate to state here that the diet and treatment after gastro-enterostomy or pyloroplasty, or resection of the ulcer, should be the same as when treated medically, except that feeding by the mouth should not be begun before the third or fourth day after the operation.

Importance of Early Diagnosis.

The early diagnosis of ulcer of the stomach or duodenum is of as much importance as the early diagnosis of tuberculosis, because if treated properly before the chronic inflammatory changes have continued too long the ulcer heals with but slight cicatrix, and the cure is apt to be permanent; whereas, in the old neglected cases it is much more difficult for the ulcer to heal and recurrences are more frequent. The same dietum that applies to suspected tuberculosis should hold in suspected ulcer—viz., the case should be treated as if a positive diagnosis were made. It is remarkable, however, even in the old neglected cases, how the symptoms are relieved and the patients permanently cured by medical treatment.

Sippy, in one of the most notable recent articles on gastric ulcer, calls attention to the

fact that many cases of gastric and duodenal ulcer are relieved in which the x-ray showed almost complete pyloric stenosis and in which there were other symptoms of organic obstruction. The patients were restored to complete health and the x-ray showed a larger opening of the pylorus, and the stomach emptied itself in the normal time. His explanation of this apparently impossible phenomena is that with the healing of the ulcer the edema and round cell infiltration disappear, leaving a thin scar with a larger opening at the pylorus.

I shall not discuss the question of diagnosis of ulcer, but will say that we are indebted to the surgeons for being positive that ulcer of the stomach and duodenum, particularly the latter, are much more frequent than we formerly supposed. We have learned that it does not take a gastric hemorrhage to make the diagnosis of gastric or duodenal ulcer, because more than ninety per cent of cases have not a history of hematemesis. A positive diagnosis is not possible in every case, but as I have said, when ulcer is suspected it should receive the same treatment as if the ulcer were known to be present.

General Management.

The treatment of gastric and duodenal ulcer should be thorough and systematic, with attention to details, which accounts for success in any undertaking. Absolute obedience of the patient is important, and happily ulcer patients can be depended upon to give the most intelligent co-operation with the physician.

Rest in bed for a period of three or four weeks, preferably in a hospital or infirmary, should be insisted upon, and the patient should be under direct observation from six to eight weeks and should report symptoms to his physician for six months or a year, whether the patient is treated medically or surgically. I have, however, treated a number of ulcer patients who have carried out a modified treatment while attending to their regular duties, and who were apparently cured; but this should never be done when the patient can get the three or four weeks in bed.

I am not sure that local applications to the abdomen are of any value, but it is almost a routine to keep a light ice bag over the epigastrium most of the time, or at least enough to keep the skin red during the day. The ice bag is said to relieve pain and to prevent pylorospasm, gaseous distention and hemorrhage. I am inclined to the belief that its effects are largely psychic. The Priestnitz compress over the abdomen serves the same purpose. In some cases warm applications to the abdomen are preferred by patients.

Oral hygiene is important. The teeth and mouth should be cleaned several times a day with a solution of bicarbonate of soda, magnesia or other alkaline powders. I frequently advise the liquor alkalinus antisepticus of the national formulary, one part to eight of water, for cleansing the teeth. The gums should be thoroughly examined for pyorrhea alveolaris with pus pockets, and if present should receive appropriate treatment. Apical abscesses or other focal infections of the mouth should be looked after by a competent dentist.

Every case of gastric or duodenal ulcer should be thoroughly examined by a competent nose and throat man for evidences of focal infections in the nasal passages or sinuses, and for infected tonsils. If an ulcer is due to focal infection there will likely be a recurrence of the condition if the cause is not removed.

Diet.

The diet is of greatest importance and should be carried out thoroughly and systematically. A modification of the Lenhartz method has given me most satisfactory results over a period of fifteen years. It is based upon the physiological principles of giving frequent feedings of small quantities of concentrated food to combine with the hydrochloric acid, without over distention of the stomach, yet of sufficient food value to build up the patient and thereby promote healing of the ulcer.

I have simplified, modified and Americanized the Leenhartz diet so that it can be carried out with greater accuracy by the average nurse or attendant than that which was orig-

inally advised. The Lenhartz diet consisted principally of eggs, milk, cane sugar, scraped beef, raw ham, rice and zweibach, which are separately prepared and given in definite quantities, expressed in grams.

I have the nurse prepare enough of a mixture in the proportion of one egg and two ounces of cream to four ounces of milk and give it every hour from 7 a. m. to 7 p. m., in gradually increasing quantities, beginning with one-half ounce the first day and increasing one-half ounce each day. It requires six days to get up to three ounces at each feeding, and the quantity is kept at three ounces for four days. From the seventh to the tenth day a soft cooked egg and two tablespoonsful of strained oatmeal may be given with the feeding at 7 a. m. and 7 p. m., and at 1 p. m. two tablespoonsful of scraped beef lightly broiled and two tablespoonsful of thoroughly cooked rice with butter.

After ten days until the fifteenth day, three ounces of the egg, milk and cream mixture are given at 9 and 11 a. m. and 3 and 5 p. m.; and two ounces of strained oatmeal with cream and sugar, and one or two thin slices of dry toast and two soft eggs for breakfast at 7 a. m. and supper at 7 p. m.; and chopped or minced chicken or scraped beef, dry toast, rice and ice cream or gelatin at 1 p. m. Butter is allowed after ten days. Beginning with the fifteenth day and for two months, the patient should have small meals three times a day with an egg and goblet of milk between meals and at bedtime.

It is surprising how the pain and discomfort is relieved by giving one-half ounce of the egg, cream and milk mixture every hour, and since the small quantities give rest to the stomach, I am quite sure that it is best to begin with small feedings and each day gradually increase the amount. The patients will gain in weight, the anemia will subside, and the strength of the patient will be built up very rapidly on this diet. In a few instances the mixture has disagreed with the patients, when the quantity of food should be reduced for a few days. It is so unusual for this diet to fail to give relief that when it does disagree I begin to suspect that there may have been a mistake in diagnosis, and look for gall

bladder, pancreatic, or other extra-gastric condition as a cause for the patient's discomfort. This diet may be begun in forty-eight hours after a hemorrhage and in three or four days after a gastro-enterostomy. In the meantime the patient may receive some nourishment by the rectum.

Modified Lenhartz Ulcer Diet.

First Day.—One egg, two ounces cream, four ounces milk. Mix and give one-half ounce every hour from 7 a. m. to 7 p. m.

Second Day.—Two eggs, four ounces cream, eight ounces milk. Mix and give one ounce every hour from 7 a. m. to 7 p. m.

Third Day.—Three eggs, six ounces cream, twelve ounces milk. Mix and give one and one-half ounces every hour from 7 a. m. to 7 p. m.

Fourth Day.—Four eggs, eight ounces cream, sixteen ounces milk. Mix and give two ounces every hour from 7 a. m. to 7 p. m.

Fifth Day.—Five eggs, ten ounces cream, twenty ounces milk. Mix and give two and one-half ounces every hour from 7 a. m. to 7 p. m.

Sixth Day.—Six eggs, twelve ounces cream, twenty-four ounces milk. Mix and give three ounces every hour from 7 a. m. to 7 p. m.

Seventh to Tenth Days.—Six eggs, twelve ounces cream, twenty-four ounces milk. Mix and give three ounces at 8, 9, 10, 11, 12 a. m., and 2, 3, 4, 5, 6 p. m.; and at 7 a. m. and 7 p. m. give two tablespoonsful strained oatmeal, two ounces cream, level teaspoonful sugar and one soft-boiled egg; at 1 p. m. one rounded tablespoonful scraped beef, lightly broiled, one heaping tablespoonful of rice and three ounces milk.

Eleventh to Fourteenth Days.—Breakfast at 7 a. m. and supper at 7 p. m., consisting of two soft-boiled eggs, one slice of toast, one pat of butter, three tablespoonsful strained oatmeal or cream of wheat, three ounces cream, tablespoonful sugar. Dinner at 1 p. m.: Two tablespoonsful scraped beef or minced breast of chicken, two slices of dry toast, two heaping tablespoonful of rice, butter, and two tablespoonsful of ice cream, one egg, one ounce cream, and three ounces milk at 9 and 11 a. m. and 3 and 5 p. m.

Fifteenth to Twenty-first Days.—Breakfast at 7 a. m.: Three tablespoonsful of strained oatmeal or cream of wheat, four ounces of cream, one teaspoonful of sugar, two soft boiled eggs, two slices of toast, two pats of butter. At 10 a. m.: One egg in goblet (five ounces) of milk. Dinner at 1 p. m.: Four tablespoonsful of scraped beef or minced chicken, two slices of dry toast, four heaping tablespoonsful of rice, two pats of butter (thoroughly baked, mealy Irish potato with butter may be substituted for rice), four tablespoonsful of ice cream, or the same amount of gelatin or boiled custard. At 4 p. m.: One egg in goblet (five ounces) of milk. Supper at 7 p. m.: Three tablespoonsful of strained oatmeal or cream of wheat, four ounces of cream, one teaspoonful of sugar, two soft-boiled eggs, two slices of toast, two pats of butter.

From Twenty-first Day to Sixth Week.—Breakfast at 7 a. m.: Two ounces strained orange juice, six tablespoonsful strained oatmeal or cream of wheat, four ounces of cream and one teaspoonful of sugar, two soft-boiled, poached or scrambled eggs, two slices of dry toast, two pats of butter. At 10 a. m.: One egg in goblet (six ounces) of milk. Dinner at 1 p. m.: Four ounces puree of pease or beans, four tablespoonsful scraped beef or minced chicken or minced lamb, two slices of dry toast, four heaping teaspoonsful of rice or 1 medium size thoroughly baked Irish potato, two pats of butter, two to four tablespoonsful thoroughly cooked tender turnip greens, spinach, or string beans mashed through a sieve, four tablespoonsful of ice cream, or the same amount of gelatin, or boiled custard. At 4 p. m.: One egg in goblet (five ounces) of milk. Supper at 7 p. m.: Six tablespoonsful of strained oatmeal or cream of

Note: The egg, milk and cream mixture should be kept in a covered dish with ice packed around it. The amount for each feeding should be given slowly and with a spoon, and with the same exactness and regularity as if it were medicine. The scraped beef should be made into a patty and lightly broiled with a little butter and salt. The rice and oatmeal should be cooked for several hours. The dry toast should be in slices about 4x4x½ inches in size. The crust should be removed and the patient instructed to chew it until it is so mixed with saliva that it becomes liquid.

wheat, four ounces of cream and one teaspoonful of sugar, two soft-boiled, poached or scrambled eggs, two slices of toast, one pat of butter.

Diet After Six Weeks.

After the sixth week and for a year after treatment the ulcer patient should follow the diet indicated in hyperchlorhydria. It should be highly nutritious, from 3,000 to 3,500 calories, because the building up process in ulcer is as important as in tuberculosis. I have been impressed with the fact that ulcer, like tuberculosis, occurs most frequently in individuals who were poorly nourished before the ulcer symptoms first appeared; and if recurrences would be prevented the ulcer patient must be kept on a highly nutritious but well balanced diet. He should avoid highly seasoned foods. Pepper, spices, condiments and pickles should be eliminated from his dietary; as should also hot bread and fried foods, most sweets as pies, cakes, syrup, etc., tough meats, corn, fruit and vegetables that contain hard seed or tough skins. Coffee, tea, coca-cola and other caffeine beverages, wines, liquors, beer or other alcoholics, since they increase gastric acidity, should be taboo by the recovered ulcer patient. Tobacco, in any form, should not be used for the same reason.

Medicines.

Lenhartz advised bismuth subnitrate in drachm doses, suspended in water one hour before beginning the food. There is some difference of opinion as to how the bismuth acts and as to whether or not it has any effect. It has been shown by the x-ray that in some cases bismuth will remain in the crater of the ulcer after it has passed out of the other parts of the stomach. It may therefore have some effect in protecting the ulcer. Aaron thinks that the bismuth subnitrate is broken down with the liberation of nascent nitric acid which acts as an antiseptic, stimulant and astringent to the ulcer, thus promoting healing. One observer has shown that bismuth in any form causes the secretion and pouring out of gastric mucus, which Cohnheim has shown to be deficient in gastric ulcer, thus protecting the ulcer from the irritating effect of the hydrochloric acid which

is usually present in excess. At any rate the bismuth seems to be helpful. I give one drachm bismuth subnitrate on the empty stomach in the morning and the subcarbonate in thirty grain doses, alternating with one-half to one drachm doses of bicarbonate of soda between each feeding depending upon the degree of hydrochloric acidity as found by repeated examination of the stomach contents. If there is constipation the oxid of magnesia is given in ten to 20 grain doses with the bismuth or sodium bicarbonate four times a day. In some cases, particularly with the nervous patients, I give strontium bromid, grains ten, in mint water two or three times a day.

In cases where there is retention of food, lavage with a solution of sodium bicarbonate, drachms four to two quarts of water, is given at 9 p. m. ; and if there is excessive secretion as in gastro-succorrhea, which is sometimes associated with ulcer, lavage is given in the early morning one-half hour before beginning the nourishment.

Treatment of Hemorrhage.

Should hemorrhage occur in ulcer of the stomach or duodenum the patient should be kept absolutely quiet in bed. Thirst may be allayed by cracked ice and rinsing the mouth with water. Fluids can be supplied by giving physiologic salt solution per rectum by the Murphy drip method. A light ice bag should be kept over the epigastrium, at least during the day. Bismuth subnitrate, drachms two, suspended in one ounce of water may be given once or twice a day. It acts as a gastric sedative and seems to favor clotting. In most cases the hemorrhage will stop simply by keeping the patient quiet.

If the patient is restless and alarmed on account of the hemorrhage, or if vomiting and retching are pronounced, one-fourth grain of morphine sulphate or one-half grain of codeine phosphate should be given and repeated every three or four hours if necessary to control vomiting. Ordinarily one dose is sufficient. Emetine hydrochloride in one-half grain doses may be administered hypodermatically twice a day for two or three days. 50 c. c. of a sterilized 10 per cent gelatin

solution may be given subcutaneously and repeated two or three times a day if the hemorrhage continues. If there is much loss of blood transfusion may be resorted to. This, when indicated, not only supplies the patient with needed blood but seems to have some effect in stopping the hemorrhage. Serum, since it contains the fibrin ferment necessary for clotting blood, preferably given intravenously, seems to be useful in gastric hemorrhage. Fresh human blood serum is best but horse blood serum may be used. It is sold in sterile containers, containing ten to twenty c. c. Diptheria antitoxin, since it contains horse serum, has been used in an emergency when the plain serum could not be obtained. Ergot, hydrastin, adrenalin, iron and a number of other drugs have been used for many years but I have discarded those mentioned because I do not think they are indicated physiologically and I have not seen any beneficial results from any of them.

Kauffman, of New York, employs lavage with good results in gastric hemorrhage. It must be carefully applied and should not be used if there is much retching from the use of the stomach tube. It would seem that lavage would be useful in preventing over distension of the stomach by removal of the blood clots and that it would also prevent the fermentation and putrefaction of the blood which occurs if the hemorrhage is retained too long either in the stomach or intestines; but I have never had the courage to introduce a tube into a bleeding stomach. If there has been sufficient erosion in a gastric ulcer to open up a blood vessel, perforation may also be imminent and even a soft rubber tube, it seems to me, might tear through the thin tissue that separates the bottom of the ulcer from the peritoneal cavity.

Enemata of hot water (115 to 120 F.) about a pint at a time and repeated three times a day will remove the blood from the intestines and prevent the toxemia which comes from the decomposition of blood if retained too long in the colon. Nutritive enemata should not be given because they may bring on gastric peristalsis. Lenhartz began feeding ulcer patients within twenty-four hours after a hemorrhage. Following his teaching I formerly did,

but in one case it seemed to bring on a return of the hemorrhage. Since then I begin the modified Lenhartz diet in thirty-six to forty-eight hours after the hemorrhage and have not seen the slightest trouble from it.

Re-Education.

In treating gastric and duodenal ulcers either medically or surgically it should be remembered that it is a secondary condition with which we are dealing, and one which is likely to return unless the underlying causes are sought for and removed. The streptococcus viridens or other pyogenic micro-organisms from focal infections in the teeth, tonsils, gall bladder, appendix, or in any part of the body may be the exciting cause; but a localized area in the stomach in a lowered state of vitality from some cause must provide the locus minoris resistentiae.

Careful questioning of ulcer patients will usually bring out a history of gross error in diet or in habits of living which result in trauma of the gastric mucosa, may be regarded as the predisposing causes. They are the same as those we find in patients suffering from hyperchlorhydria, which is usually seen in ulcer, and which I believe nearly always precedes it. Rapid eating, insufficient mastication, overeating, the ingestion of coarse foods, hot drinks, alcohol coffee, tea, coca-cola and other caffeine beverages, the excessive use of tobacco, over-work, worry, grief, fear or other cause of functional hyperchlorhydria must be looked after.

The particular error or errors in diet and living must be pointed out to the patient and he must be taught how to live in order to prevent the recurrence of ulcer. In my opinion one of the reasons why surgery so often fails is that the patient believes that the operation is all that is needed to restore him to complete health and he goes back to the same method of living that brought on the ulcer in the beginning. The ulcer patient should be made to know that for a year or two, and probably for the rest of his life, he must lead the simple hygienic life if he hopes for health.

I regard the ulcer patient as a teacher looks upon a pupil, i. e., one to be taught personal hygiene, with particular reference to avoid-

ing errors in diet; and I make the daily effort to instruct him how to live in order to enjoy health and efficiency. Psychotherapy, particularly the DuBoise method of re-education, should be practiced is dealing with ulcer patients, because there is usually the psychasthenic element present. It is the careful attention to every detail that gives best results in the dietetic and medical treatment of gastric and duodenal ulcers.

TABULATIONS AND PRELIMINARY OBSERVATIONS OF REPORTED VENEREAL DISEASE CASES.

By Geo. A. Hays, M. D.

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Nashville.

One of the purposes of the Division of Venereal Disease Control is to use to the greatest advantage such information as is made available through its various activities. With this purpose in view, rather elaborate tabulations have been made of the venereal disease cases reported by physicians and clinics between September 1, 1919, when venereal disease reporting was inaugurated, to June 30th, 1920. These tabulations are submitted herewith together with the following observations:

It should be kept in mind that the observations are based upon the assumption that the reporting of these cases reflects their true relationship in Tennessee. It is known that all cases are not reported. What proportion of existing cases are reported and to what extent one is reported more than another is not known.

It is notable that of the total of 7,929 cases reported only 6,067 were of statistical value, 1,862 containing no statistical data whatever or were not included because of plainly apparent duplications by laboratory reports and reports of transferred patients. In only 3,070 cases were age, sex, color, marital conditions, occupation and place contracted included.

Probably the most significant demonstrable fact is that the total number of cases of gonor-

rhea reported represents less than 50 per cent of the total and that they exceed those of syphilis by less than 300 cases.

The reported cases of gonorrhea represent 48 per cent of the total cases, syphilis 44 per cent and chancroid, 8 per cent.

For obvious reasons the following deductions concern only gonorrhea and syphilis.

Of both diseases it may be stated that the largest number of cases are contracted between the ages of 17 and 25. Females appear to contract venereal disease earlier than males.

Both diseases are reported more frequently in white persons. Apparently the female negro more frequently contracts venereal disease than the male.

Single and married persons have gonorrhea more frequently than syphilis. Widowed and divorced persons have syphilis more frequently. In males venereal diseases predominate in the pre-nuptial state. In females the reverse holds true.

Approximately one of every seven persons having venereal disease handles food that is consumed by others. Obviously the percentage of food handlers is high in females. Sixty-six of every 100 females having venereal disease are in this class.

Persons in all trade classifications have gonorrhea more frequently than syphilis.

For every case of venereal disease contracted away from home, three are contracted locally.

Gonorrhea.

Age Groups: The age group of greater frequency for both males and females is 17 to 25. Of each 100 reported cases in males, 75 were acquired during this period, and of each 100 reported cases in females, 59 were acquired between those ages.

In general, females acquire the disease much earlier in life than males and less frequently during the latter period.

Color: White persons for both sexes predominate in the reports. The male whites outnumber the females about five to one. Only a few more white women are reported as having gonorrhea than negroes.

Marital: Four times as many single men have gonorrhea as married men. More mar-

ried women are affected than single. Relatively more married widowed and divorced women have the infection than men in like conjugal relations.

If it may be considered that "domestic," which includes housewife, is a food handling occupation, in every 100 cases there are 13 handling food used by other people.

In males the clerks and laborers are greatly in evidence and are exceeded only by those men in industry.

Place Contracted: Over twice as many persons contract gonorrhea at home as abroad. Over one-half of men affected get their infection in the immediate vicinity, the same being true in over three-fourths of women.

Syphilis.

Age Group: It appears that females acquire the disease considerably earlier than males. Twice as many males are affected over 36 than females. Congenital syphilis is about equally distributed in males and females.

Color: Proportionately, more male white persons are reported as having syphilis than white females, but in negroes the reverse is true. The females of both races are about equally infected.

Marital Condition: Four times as many single men have syphilis as do married men. In females the proportion is only about two to one. As in gonorrhea, more women are found with syphilis after marriage and marital trouble than men.

Occupation: Of every 100 persons having syphilis, there are 20 handling foodstuffs. It appears that more men in clerical, labor and industrial fields are infected than women.

Place Contracted: It is apparent that for every case of syphilis brought into the community four are contracted in the community.

Conclusion.

Thorough discussion of these figures is reserved for the future. However, the following points are worthy of note:

1. Apparent misinterpretations are chargeable to physicians. Unless all personal data is given in the reports by physicians, the tabulations and the deductions therefrom may be

TENNESSEE STATE BOARD OF HEALTH

Tabulation of Venereal Disease Cases Reported from September 1, 1919, to June 30, 1920*

		TOTAL CASES												GONORRHEA		SYPHILIS		CHANCROID		GONORRHEA		SYPHILIS		CHANCROID	
		MALE				FEMALE				SEX NOT STATED				MALE		FEMALE		SEX NOT STATED		MALE		FEMALE		SEX NOT STATED	
		Data Incomplete		Data Complete		Data Incomplete		Data Complete		Data Incomplete		Data Complete		Data Incomplete		Data Complete		Data Incomplete		Data Complete		Data Incomplete		Data Complete	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Age.	Totals.....	6,067	100			4,148	100			1,807	100			112	100					2,943	100			2,645	100
	Total, Data Complete.....	5,632	100			3,877	100			1,663	100			92	100					2,866	100			2,299	100
	1-12.....	76	1.3	76	1.3	27	.7	27	.6	32	1.8	32	1.9	17	15.1	17	18.5			27	.9	27	.9	49	1.9
	13-16.....	228	3.8	228	4.1	73	1.8	73	1.9	142	7.8	142	8.5	43	11.6	43	14.1			109	3.7	109	3.8	102	3.8
	17-25.....	2,976	49.	2,976	52.8	2,034	49.	2,034	52.5	902	49.9	902	54.3	40	35.7	40	43.5			1,661	56.3	1,661	58	1,044	39.5
	26-35.....	1,600	26.4	1,600	28.4	1,152	27.8	1,152	29.7	437	24.2	437	26.3	11	9.8	11	11.9			757	25.7	757	26.4	713	26.9
	36-50.....	625	10.3	625	11.1	481	11.6	481	12.4	135	7.5	135	8.1	9	8	9	9.8			263	9	263	9.2	325	12.3
	50+.....	127	2.1	127	2.3	110	2.6	110	2.9	15	.8	15	.9	2	1.8	2	2.2			49	1.7	49	1.7	66	2.5
Color.	Not stated.....	435	7.1			271	6.5			144	.8			20	18					77	2.7			346	13.1
	Total, Data Complete.....	5,737	100			3,979	100			1,736	100			22	100					2,849	100			2,422	100
	White.....	3,529	58.2	3,529	61.5	2,626	63.3	2,626	66	893	49.4	893	51.5	10	8.9	10	45.5			1,938	65.9	1,938	68	1,326	50.2
	Black.....	2,208	36.4	2,208	38.5	1,353	32.6	1,353	34	843	46.7	843	48.5	12	10.7	12	54.5			911	30.9	911	32	1,096	41.4
Marital Condition.	Not stated.....	330	5.4			169	4.1			71	3.9			90	80.4					94	3.2			223	8.4
	Total, Data Complete.....	3,820	100			2,910	100			856	100			21	100					2,031	100			1,415	100
	Single.....	2,535	41.8	2,535	66.3	2,148	51.8	2,148	73.1	372	20.6	372	43.4	15	13.4	15	62.5			1,367	46.5	1,367	67.2	873	33
	Married.....	906	14.9	906	23.7	603	14.5	603	20.5	297	16.4	297	31.7	6	5.4	6	25			545	18.5	545	26.8	315	11.9
	Divorced.....	107	1.8	107	2.8	51	1.2	51	1.7	56	3.1	56	6.6							45	1.5	45	2.2	53	2
	Widowed.....	272	4.5	272	7.2	138	3.4	138	4.7	131	7.3	131	15.3	3	2.7	3	12.5			77	2.6	77	3.8	174	6.6
Occupation.	Not stated.....	2,217	37			1,208	29.1			951	52.6			88	78.5					909	30.9			1,230	46.5
	Total, Data Complete.....	3,340	100			2,753	100			540	100			41	100					2,044	100			976	100
	Domestic.....	312	5.4	312	9.3	6	.1	6	.2	306	16.9	306	56							167	5.7	167	8	130	4.9
	Food.....	185	3	185	5.5	124	3	124	4.5	59	3.3	59	10.8	2	1.8	2	4.9			101	3.4	101	4.9	70	2.6
	Clerical.....	478	7.9	478	14.3	437	10.5	437	15.9	30	1.7	30	5.5	11	9.8	11	26.8			353	12	353	17.4	98	3.7
	Labor.....	563	9.3	563	16.9	548	13.2	548	19.9	11	.6	11	2.1	4	3.6	4	9.8			352	12	352	17.3	147	5.6
	Industrial.....	670	11	670	20.1	604	14.6	604	21.9	53	2.9	53	9.7	13	11.6	13	31.7			479	16.3	479	23.4	142	5.4
	Other.....	1,132	18.7	1,132	33.9	1,034	25	1,034	37.6	87	4.8	87	15.9	11	9.8	11	26.8			592	20.1	592	29	389	14.7
Place Contracted.	Not stated.....	2,727	45			1,395	33.6			1,261	69.8			74	63.4					899	30.5			1,660	63.1
	Total, Data Complete.....	4,353	100			3,120	100			1,164	100			69	100					2,542	100			1,440	100
	Locally.....	3,176	62.3	3,176	73	2,091	50.5	2,091	67	1,030	57	1,030	88.5	55	49.1	55	79.7			1,751	59.5	1,751	68.9	1,159	13.8
	Foreign.....	1,177	19.4	1,177	27	1,029	24.8	1,029	33	134	7.4	134	11.5	14	12.5	14	20.3			791	26.9	791	31.1	281	10.6
Not stated.....		1,714	28.3			1,028	24.7			643	35.6			43	38.4					401	13.6			1,205	45.6

N. B.—In "Data Complete" figures all "Not Stated" totals have been deducted.

*These figures do not include 1,362 cases reported which were duplications or were for other reasons of no statistical value.

misleading. More care should be manifested by physicians in making venereal reports.

2. The proportion of reported cases of gonorrhea to those of syphilis apparently disproves the popular conception that gonorrhea is five to ten times more prevalent than syphilis.

3. That there should be early and thorough education of the girls is clearly indicated. When the female is found to be infected earlier in life, more frequently in marital and post-marital conditions and when two-thirds of those infected are handling food that is consumed by others, is it not reasonable to assume that she is "deadlier than the male?"

MILK IN ITS RELATION TO PUBLIC HEALTH.*

By M. Jacob, V. M. D.,
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Knoxville.

It is a source of considerable satisfaction to be invited to present an article before this association, if for no other reason than that it gives evidence that the medical fraternity in this immediate section is in line with activities of similar organizations throughout the country in the consideration of those problems having a broad and economic public influence.

I am strongly of the opinion that the future of both human and veterinary medicine will be directed more and more along preventive lines, and with this will come greater efficiency in the production and distribution of a wholesome food supply. Research work within recent years has demonstrated with remarkable regularity the intimate relationship of disease to direct or indirect dietetic origin. In other words, food plays an important part in the great question of public health. The various agencies which are now at work are forcibly impressing this fact upon the public, with the result that a pure food supply is not only shown to be a necessity, but is being demanded.

At the outset it was my intention to com-

ply with the wishes of your secretary to prepare a paper on the relationship of food to disease. This, however, would have forced me to discuss the question in only a general way, so I have taken the liberty of limiting my paper to the subject of "Milk in Relation to Public Health," with the hope, however, of bringing out something additional during a possible general discussion.

There are several reasons why the question of milk is extremely pertinent:

1. It is so generally used, and more so in the United States than in any other country. Containing as it does the essential dietary ingredients in proper proportion, namely, proteids, carbo-hydrates, fats, inorganic salts and water, it occupies in its various forms a most important part in our daily rations.

2. It offers one of the most fertile culture media for the various pathogenic and non-pathogenic organisms. As an evidence of this, we have the enormous bacterial count so frequently found in market milk.

3. It is an unstable product and unless quickly and properly handled, undergoes rapid deterioration.

4. From its source, the cow, until consumed there are innumerable possibilities for contamination.

5. Being so generally used in a raw state, it becomes unusually dangerous when polluted with disease-producing organisms and toxins.

6. Being used as a substitute for mother's milk in infant feeding, it no doubt has a bearing in part on the great question of infant mortality; especially so, since the majority of these losses, I understand, can be attributed to gastro-intestinal disturbances.

With the foregoing in mind, we are impressed with the fact that milk is indispensable as a food and at the same time highly responsive to any deteriorating influences. It was not nature's original intention that milk should be subjected to the modern commercial system of handling, but instead, to give early subsistence to the offspring direct from the mother. The trend of events, however, has changed this to a marked extent, so much so that the dairy industry now constitutes one of the nation's greatest resources, and with it

*Presented before the Knox County Medical Society, October 26, 1920.

goes the gigantic problem of sanitary control.

Milk contamination may be divided into two general classes:

1. That which results directly from the cow, prominent among which are bovine tuberculosis, foot and mouth disease, milk sickness, mastitis, other pyogenic conditions, cowpox, anthrax, rabies and actinomycosis.

2. That occurring from sources other than the cow, including typhoid fever, paratyphoid, diphtheria, scarlet fever, septic sore throat, tuberculosis of human origin, and probably other infections.

Bovine Tuberculosis.

Among the former, bovine tuberculosis is by far the most important and is deserving at this time of some extended remarks. I dare say many of you will recollect the famous announcement in 1901 by the late Dr. Koch during the International Congress on Tuberculosis, held in London, that "bovine tuberculosis is transmissible to the human subject only slightly, if at all." Coming as this did from so eminent an authority, it cast considerable doubt on opinion previously held regarding its transmission to man from meat and milk sources. However, subsequent observations by many investigators in different parts of the world, including von Behring, left no doubt but that man is susceptible to tuberculosis of bovine origin. On the other hand, as demonstrated by Theobald Smith in 1896, there does exist a morphological difference between tubercle bacilli from human and bovine origin. Koch's statement, however, did a considerable amount of good in so far that it brought about an enormous amount of research work. Those using a more exclusive milk diet are most liable to an infection from this source, consequently, it exacts its greatest toll among children. The fact that intestinal tuberculosis is not more common among children and older milk drinkers does not minimize the possibility of infection from such a source, for it has been definitely established that the infection may occur through the digestive tract with the primary lesion occurring in some distal part of the body, as in the lungs or thoracic lymph glands.

In this connection the observations of Park

and Krumwiede as reported in the *Journal of Medical Research* are interesting. In determining the type of tuberculosis in 1,511 cases, there were 955 individuals over 16 years of age, 177 in children between 5 and 16 years, and 368 in children under 5. The tubercle bacilli of bovine type were found in 35 per cent of the cases between 5 and 16 years of age and in 26 per cent of the cases in children under 5 years. The evidence at hand is sufficient to justify legitimate means toward eradicating this disease from the herd. But considering the situation from our own immediate locality, this is not our most difficult problem toward a wholesome milk supply, for the reason that our native herds, which include the bulk of our dairy cattle population, have shown a relatively low percentage of infection. This does not mean, however, that our native cattle are not readily susceptible, but it is simply a matter of being blessed with favorable environment and which, by the way, will ultimately help to make this one of the great dairy sections of the country.

Foot and Mouth Disease.

Foot and mouth disease or aphthous fever is not so important to us at this time as the disease does not exist in this country at present, although in the past severe outbreaks have occurred in the more Northern and Eastern states. It should be remembered, however, that milk from infected cows may carry the disease to the consumer and is therefore unfit for human consumption.

Milk Sickness.

For many years I had heard of a disease occurring in different sections of the state, which is commonly referred to as "milk sickness," but it remained for personal observations in Blount county about two years ago to impress me with the seriousness of this condition. While there are some things about it which are not yet thoroughly understood, we do know that the disease, as it occurs is man, is distinctly milk-borne. Strangely, the cow may be transmitting the disease through her milk while she herself shows absolutely no indications. The symptoms of milk sickness in man are very characteristic and its control depends largely upon the ability of the at-

tending physician to recognize it. At present, the most widely accepted theory attributes its origin to the cattle having access to certain weeds, especially white snake root, which when consumed by the cow, produces a toxin which is liberated through the milk channels. There are others who maintain the view that it is of bacterial origin.

Mastitis.

Of the various conditions affecting the milk cow, one of the most frequent and at the same time having a distinct bearing on the quality of the milk, is mastitis. The inflammatory conditions of the udder are invariably associated with pus producing organisms and extraction of the milk without such contamination becomes impossible. Advanced cases of udder trouble are not difficult to detect, but at the beginning they may pass unnoticed until our attention is directed more forcibly by the high bacterial count of laboratory examination. It is highly probable that many cases of septic sore throat may be attributed to infection of this kind, but at any rate the bacteria found in cases of mastitis are more or less harmful to man. There are other pyogenic conditions which may affect the quality of the milk, such as metritis, retained placenta, etc., but in these cases the infection reaches the milk from outside contamination rather than through the udder.

Regarding the other cattle diseases, such as cowpox, anthrax, rabies and actinomycosis, there are relatively few instances where any of them have been transmitted to man through milk, due in part no doubt to the fact that such cases in the herd are readily detected and precautionary measures are **taken to prevent their** spread and automatically the milk supply is protected.

Typhoid Fever.

Among those diseases carried through milk, from sources other than the cow, typhoid fever has proven to be by far the most frequent, as there have been recorded any number of instances throughout the civilized world where typhoid fever has appeared in the form of an epidemic through the distribution of contaminated milk supply. Milk

may become contaminated with the typhoid bacillus in various ways, such as the use of polluted water in the handling and cleaning of dairy and milking utensils, the delivery of bottles to places where there are typhoid patients, the handling of the milk or utensils by people infected with typhoid bacillus and especially the apparently healthy but dangerous typhoid carrier. The latter has created many baffling situations when attempting to locate the real source of infection when epidemics have occurred. The fly also plays an important role in the possibility of such contamination.

The situation is such that milk ranks second only to water as a carrier of typhoid fever. It seems, however, that in Knoxville we have been unusually fortunate, for I can recollect only one instance where an outbreak of typhoid fever could be positively attributed to the milk supply.

Paratyphoid Fever.

What has been said regarding typhoid may be largely applied to paratyphoid fever as well, and any precautionary measures applied for one should be equally effective for the other.

Other common infectious diseases, rarely, though sometimes spread through milk are diphtheria, scarlet fever and septic sore throat, outbreaks of which have occurred and the indictment finally placed on some individual handling the milk. As previously stated, epidemics of septic sore throat have apparently been caused by the organisms associated with mastitis, although such cases are more often the result of milk contamination direct from the patient.

Human Tuberculosis.

In considering the infection of tuberculosis through the milk supply, I am inclined to the belief that the spread of the disease from human origin is frequently overlooked. It should be very apparent that milk handled by tuberculous persons under ordinary conditions becomes a dangerous commodity. I know of no argument which could justify the services of such an afflicted person in the dairy, although the tendency in many in-

stances has been to select or suggest such work as a health restorative.

Milk Products.

What has been said regarding milk contamination applies also to the various milk products, especially ice cream, butter and cheese, as the process of preparation cannot, as a rule, be relied upon to destroy the virulence of any of the disease producing organisms. Furthermore, the handling of these products through the ordinary commercial channels exposes them to such frequent sources of infection as have already been referred to.

Pasteurization.

Much has been done within recent years toward minimizing milk borne infection by resorting to pasteurization. It is generally conceded that a proper system of pasteurization will destroy the various pathogenic organisms and this without producing any appreciable change in the character of the milk. However, to rely alone on pasteurization to produce wholesome milk is wrong in principle, as it would have little tendency to stimulate better production on the part of the dairyman. But unless the milk producers of the country keep abreast of the times, the demand for pasteurized products will become more general. There should be no reason here under our conditions why a wholesome raw product should not be available.

Drawing conclusions from what I have stated, the responsibility for a good milk, in a general way, must be determined to the producer, physician, health authorities and the consumer. The producer should do his part in the maintaining of healthy cattle, sanitary barns, milk houses, premises and utensils, healthy attendants and the proper care in the handling and distribution of his products. The physician should without delay advise the proper health authorities when a communicable disease occurs on the premises on which a dairy is being operated, even though it constitutes the distribution from only one cow. The health authorities are looked upon by the general public for the safeguarding of its interests through the application and enforcement of laws, rules and regulations having

as a distinct object the production and distribution of clean milk and its products.

The consumer, as a final step, should give proper attention to the proper handling and care of these products. I am sure there are many instances where contamination or deterioration is brought on as the result of neglect after the product reaches the home, such as improper cooling, or exposure to flies and filth.

The production of a sanitary milk supply is, to say the least, one of our most important problems and requires close co-operation between all factors having either a direct or indirect interest in public health.

A MAN IS AS GOOD AS HIS FEET.

By Alphonse H. Meyer, M. D.
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Medicine, Memphis.

It is my desire, in this paper, to call your attention to a condition to which too little attention is paid.

We are living in an age of progressive medicine as well as preventive medicine. Why, not attempt to prevent "foot ills," before they go too far, at a time when some little mechanical adjustment, perhaps with the aid of foot exercise, will completely correct the condition? While in the army we recognized the fact that any army was just as good as its feet, and so it is with the private citizen. A foot incapacity means an ineffective individual, a condition which can be absolutely prevented if an attempt is made to correct the existing evil in its incipency. Public health campaigns are conducted to educate the public along lines of preventing the occurrence of infectious diseases, but not one step is taken towards preventing the development of weak feet, with the eventual production of foot deformities. This great war through which we have just passed has, perhaps, done much towards educating the individual along the proper lines of footwear. Why not, with this as a beginning, push the campaign on and further?

*Read before the Memphis and Shelby County Medical Society, January 20, 1920.

I fear the one great trouble which is the cause of so many foot evils is the lack of the early recognition of the beginning weakening of the foot on the part of the family physician. It is he who most often gets into the privacy of the homes, and were he sufficiently versed in the art of detecting an early foot weakness, attention could then be called to the importance of having treatment immediately instituted.

Many cases begin in early childhood, and it is at this time that complete cure could be had. If the weakness is left to run on it can only go from bad to worse. Many cases have their start in early adolescence, as a result of narrow-toed and high-heeled shoes. Other cases begin from occupational causes, such as are seen in those who are compelled to stand on their feet for great lengths of time, as waiters, policemen, street car motormen and conductors. Some start from focal infections, while still others result from improper walking, the proper gait being feet parallel, toes pointing straight ahead. Now in looking over these various causes, do we not see many which could be entirely prevented? And if the condition is preventable, why not prevent it?

We owe it to our country, as public servants and as scientific men, to give the public the benefit of our training and knowledge, and if we know of something to help make men and women more efficient physically, it is our duty to so educate them. Cases of smallpox, typhoid fever, diphtheria, etc. have been reduced in numbers as a result of prophylactic measures. Why not reduce the number of cases of weak feet, tending to destroy or, at least to reduce efficiency?

I am sure that many men and women often have to change occupations for others less remunerative, owing to too great a demand having been made upon their weak feet. Is not such a social condition distressing, and especially so, when we know that it could have been prevented?

As physicians, we are probably not aware of the number of cases of weak feet that exist, for they never reach the doctor unless the trouble has developed to an exaggerated degree. Statistics taken from Whitman show

that in 1917, at the Hospital for the Ruptured and Crippled, New York, 2,736 new cases of weak feet registered out of total of 8,883 new cases—30.8 per cent—and this likely represents only a small proportion of those who have foot weakness.

The newspapers are full of advertisements of "arch supports," for fallen arches, tired, aching feet, etc., and a majority of those afflicted attempt to get relief in the shoe store or at the chiropodist by buying a pair of stock "arch supports." No two feet are alike in physiological structure, much less so when pathology sets in, therefore how could it be expected that the same "arch support" which will raise and support your arch at the proper point will do the same for mine? Besides, a stock "arch support" is merely supportive and not at all corrective. If you needed artificial teeth or a pair of glasses, would you walk into a store and select them at random, and expect them to overcome the existing trouble? Of course, you would not, and you have no right to expect any more from a stock "arch support." I mention this pernicious habit of the shoe salesman and the chiropodist only to condemn it.

But at that even some physicians are culpable, for in their ignorance of how to treat a weak foot, they follow the lines of least resistance and tell their patients to go out and buy a pair of stock 'arch supports' and that they will probably (mind you, I say they say "probably") give them relief. We have scientific treatment for the feet just as we have for removing an acutely inflamed appendix, and in most cases can completely relieve all symptoms, and in nearly every case improve or correct the mechanics of the foot.

We are all aware of the deformities which ill-shaped and ill-fitting shoes produce. The savage races, who never wear shoes, suffer from no such disabilities as hallux valgus, fallen transverse arches, corns, callosities, etc., as these are the results of what we might term "higher civilization," but, which in reality, in this enlightened age, are nothing more than expressions of the grossest ignorance.

Weak feet oftentimes produce far-reaching effects and many a painful knee, or hip, or back has been relieved of symptoms by simply

correcting a foot deformity. Many a poor unsuspecting individual has been treated for a lumbago, when the cause of his trouble lay in his feet, and the resulting back condition was only a static one.

In order to improve conditions physicians must learn to recognize a beginning foot weakness, even though it exists without the expression of symptoms, and at once correct the imperfect mechanical adjustment, for, after all, the whole matter is only one of simple mechanics. A little experience on the part of the physician will soon teach him to recognize a weak foot. All weak feet are abducted. (In using the term "abducted," I do so in a general way, and it may include the terms of "pronation and eversion.") A cursory glance at a foot should immediately tell one whether it is weak or not. Is a normal foot the internal border should curve slightly outward and when the two feet are placed side by side with the heels and toes in apposition, a slight interval should exist between the feet. If this concavity is replaced by a slight convexity, the foot is weak. Because a foot is high arched is no reason for saying it is not a weak foot. In fact, the real high arched foot may produce symptoms which are less amenable to treatment than one of a lower arch. A so-called "flat foot" may be a very efficient foot, for one never knows how high the arch originally was in this individual, and this low arch may be perfectly normal for its owner. Provided it is not abducted and is not producing symptoms, it is not a weak foot.

In conclusion, let me urge upon the physician to pay more attention to the foot, and if a weak one is observed to insist upon its being treated while the condition is in its incipency, thus helping to conserve the physical efficiency of the individual, thereby adding to the strength of our country.

Personally, I believe a foot campaign should be nationally instituted, and carried through the public schools of our country and various other channels, and thus attempt to spread the doctrine of "a man is as good as his feet."

516 Goodwyn Institute Bldg.

THE CERVIX UTERI.

By V. D. Halloway, M. D.
Knoxville

It is not proposed to discuss by any means every type of cervical disease in this paper but to limit it to the commoner abnormalities of the uterine cervix.

The cervical mucosa is composed of deeply penetrating racemose glands which secrete mucus.

The cervix does not participate in menstruation or decidualation.

The cervix mucosa displays a marked susceptibility to infection while the endometrium of the uterine body is practically immune to infection.

Some writers have well termed the cervical mucosa the "tonsil" of the uterus. Many gynecologists and pathologists concede that clinically, at least, corporeal endometritis may be safely discarded. Bacteriological studies fully substantiate the relative immunity of the corporeal endometrium to ascending surface infection. It appears from careful bacteriological tests that almost all women who are free from salpingitis and puerperal sepsis have an endometrium free of bacteria. In the last edition of Graves' gynecology he states "that the uterine mucosa is a tissue greatly misunderstood, it being an inoffensive tissue very little responsible for the many ills ascribed to it."

The endometrium is the soil for ovarian implantation and it is doubtless for this reason that nature provided it be comparatively immune to infections common to other membranes. Formerly the term endometritis was loosely applied to all changes in the uterine canal, and the effects were supposed to be severe and far-reaching and harmful curettage was frequently resorted to. Recent studies have shown that this structure plays a very small part in gynecologic disease.

Infection determines the morbidity of most cervical lesions and here, as elsewhere, the lymphatic system shows the greatest reaction; by it the infection is directly carried from the mucosa to the myometrium and further into two main lymph channels which run parallel to the uterine and ovarian arteries in the

broad ligament. From the cervical mucosa infection takes this course and does not go by way of the uterine endometrium and lumen of tubes. It travels along intramuscular planes of the uterine and tubal walls as an ascending lymphangitis; causing at times minute abscesses in the myometrium and various other conditions depending on the degree and variety of infection. We may have kinking of the tubes with likely ectopic complications, hydrosalpinx, pyosalpinx, thickening of the ovaries, capsule, etc.

Endocervicitis in lieu of the foregoing assumes a most important role and deserves most careful consideration.

An acute inflammation of the cervix may travel rapidly up through the myometrium as an ascending lymphangitis with all its complications, or the greatest damage may be confined to the cervix with always more or less general uterine adnexal and systematic disturbance. Such a condition often begins with a laceration of the cervix during labor followed by infection, subinvolution, cystic degeneration of the cervix, etc. The infection penetrates to the cervical glands and there is a resultant purulent leucorrhea, together with various other symptoms. These glands become blocked causing small retention cysts. At times these cysts project into the cervical canal, forming polypi. The mucous membrane of the endocervix becomes greatly thickened and improper uterine drainage results. Due to continued inflammation there is a connective tissue proliferation and a lymphocytic infiltration producing an enlargement of the cervix; a continuation of this condition often results in cancer.

The organisms most frequently infecting the cervix are gonococcus, streptococcus, staphylococcus, and colon bacillus. Infection readily follows any break in the mucosa as from dilatation, laceration, etc.

The symptoms of infection of the cervix vary from a persistent leucorrhoea to invalidism. Menstruation is disturbed, usually being excessive because in cervical infections the myometrium is inflamed and its contractile power interfered with. In marked involvement of the uterus and adnexa menstruation may be inhibited. The ovarian tunica

albuginea may be so thickened as to interfere with maturation and rupture a graafian follicle and in this way inhibit menstruation and fecundation.

Dysmenorrhoea follows involvement of the myometrium. Occlusion of the tubes following peri-salpingitis may cause sterility. Endocervicitis per se produces sterility. The spermatozoa can't "carry forward" through this acid and purulent "pass." Vesical irritability, backache and various nervous symptoms follow. The harm from a laceration alone is slight unless infection occur or unless the laceration be so extensive as to interfere with the uterus carrying a foetus to term.

In treating cervical disease our armamentarium for so-called "local treatment" is woefully ineffective yet much overworked. If we consider the pathology here we can but realize that silver nitrate, iodine and the other chemicals are of little value except in an acute stage and this stage we are rarely called to treat.

The uterine curet does much harm in cervical endometritis. Trachelorrhaphy in its true sense is of value only where the disease has not extended beyond the lines of the original tear.

To cure a chronic endocervicitis we must remove the entire infected gland bearing area of the cervix or destroy it by actual cautery. The removal of the gland bearing area is accomplished by excising the cervical mucosa and the gland bearing area by a Sturmdorf operation or some modification of this. Such an operation must be thorough and should leave as much as possible of the cervical myometrium. This the high amputation does not do. The proper operation is difficult. Dr. Howard Kelly in his report of 800 cases states that even low cervical amputation as performed in his clinic caused sterility in eight out of ten cases. If the operation is limited to the diseased area it relieves sterility rather than causing it, and the usual amputation is rarely indicated.

During the past year I have done fewer cutting operations on the cervix, using instead in selected cases multiple incisions with a small cautery knife with a thin blade, placing

this knife in the previously dilated cervical canal and cutting through the mucosa into the glands. Four to six such incisions radiating like the spokes in a wheel are made. Results from this method have been most satisfactory and a difficult cervix operation can often be avoided.

In two weeks this cervix treated by the cautery looks angry; in two months it is smooth and the patient freed from leucorrhea and other distressing symptoms which the endocervicitis was causing. The patient has suffered little inconvenience save anesthesia and a week spent in the hospital.

The tendency of some surgeons to perform a hysterectomy on account of these foul-looking cervixes is to be heartily condemned and we must realize that an angry, infected, cystic, hypertrophied cervix covered with purulent secretion is not cancer and does not call for a mutilating operation such as hysterectomy.

NUTRITION.

By J. T. Barbee, M. D.,
Knoxville.

In this paper I claim no originality. I will attempt only to correlate such facts and newer proven principles of nutrition as are being taught by such men of research as McCollum and Davis of Johns Hopkins, Graham Lusk of New York, and others doing similar work at Rockefeller Institute, Harvard University, and University of Wisconsin. To McCollum of Johns Hopkins I give especial credit, since this paper is in the main a synopsis of his book, "The Newer Knowledge of Nutrition."

Health and disease are measured largely by the nutrition of the body, or failure to nourish, and the ability to beget young.

The chronic or permanent departure from health in the individual, due to nutritive disturbances, is most usually noted by loss of body weight, or failure to gain; a disturbed nervous system; and abnormal skin, hair and nails.

Since the necessity of selecting food is one which falls upon both men and women for themselves and their children throughout a

large part of their lives, and since their habitual choice exerts a powerful influence on their health and general well being, the physician and the laity must develop every educational opportunity in the selection of food and proper habits of life. Even progeny is influenced by it, how much no one knows, but we know enough already to keep our minds and hands busy in research.

Our knowledge of nutrition has progressed hand in hand with the science of chemistry, and it will always aid in extending knowledge of the finer processes of physiology. This was the main study of the nineteenth century, so we study fats and how they can be converted as in soap making; the starches to simpler sugars; the closely related chemical natures of protein bodies; and with these, associated in the human living tissue, more or less water and mineral salts. But more practical knowledge has come from systematic feeding of simplified diets to animals.

It is well known how a restricted diet may produce scurvy and that the vitamins or salts that are lacking in the diet which produces it can be found in orange juice and fresh vegetables. Pellagra, while not solely caused by wrong diet, is undoubtedly influenced by it, as Goldberger has proven. Beri beri is a deficiency disease caused by prolonged eating of a diet composed principally of polished rice and fish, and when the whole rice is given, restoring the husk and kernel, the necessary vitamins are restored to cure. Not until the last ten or twelve years has careful study been made and fully appreciated how great are the differences in nutritive food values, and how to correct the errors caused by disease, or wrong feeding.

In 1907 at the University of Wisconsin Experiment Station, with a view to determine whether a ration so made up as to be alike in so far as could be determined chemically, but derived each from a single plant, would prove to be of the same value for growth and the maintenance of vigor in cattle. The ration given to one group of animals was derived solely from wheat, consisting of wheat, gluten and straw. The second group from corn and its stalk. The third group from oats and its straw; and the fourth group from a mix-

ture of all three. The animals were heifers of equal age, size and vigor, and four to each group. All groups ate practically the same amount of food, and digestive tests showed that there was no difference in the digestibility of the rations. It was not until all groups had been confined to the test for a year or more that any marked difference was noted. The corn-fed group were slick and fine and evidently had been well nourished. In contrast, the wheat-fed group had rough coats, were gaunt and had small girth, but there was no marked difference in weight. The oat group and the mixed feed group stood between.

The reproduction of these animals was very interesting. The corn-fed heifers invariably carried their young to maturity and the young showed vigor at birth. The young of the wheat-fed group were the reverse. All were born three or four weeks too soon and all weighed on an average of 46 pounds, whereas the young from the corn-fed weighed 73 to 75 pounds, which weight is normal for calves. The young of the wheat-fed mothers were born about four weeks prematurely; were either dead when born or died a few hours after birth. The young of the heifers fed on oats did almost as well as the corn-fed group, calves weighing 71 pounds, but all of them produced calves two weeks too soon. One of them was born dead, two were very weak and died later, the fourth was weak, but with care was kept alive. The young of the cows fed the mixture were very weak in all cases, and one was born dead, and one died in six days. The mothers were kept on their experimental rations, and on the following year they repeated the reproduction records observed in the first gestation period. The causes of these differences could not be determined by any known physiological or chemical knowledge.

The conclusion drawn by Dr. McCollum, who observed this experiment, and the lesson to be learned is that the only way to which the problem of nutrition could ever be solved would be to solve it first by solving the problem of the successful feeds of the most simplified diet possible.

It was found that rats fed on purified proteins, carbohydrates, fats and mineral salts, or assembled food elements, such as we have

in many of our proprietary foods and daily diets of some people, would not thrive and could not reproduce themselves. It was obvious that something else was lacking which was indispensably necessary for the nutrition of an animal and for its reproduction. It was not until 1912 that light began to be shed upon the subject. It was then found that if to the above diet of assembled food elements butter was added, growth could be secured, whereas the growth could not be produced by the substitute of lard, cotton seed oil, olive oil or other vegetable oils. The latter were good heat and energy producing foods, but would not when given alone without butter produce growth. The addition of egg fat was next tried and found to be sufficient to produce growth in the same way as butter fat.

Hopkins called these unidentified food substances which are necessary to life "accessory articles of the diet." Funk called them "vitamines," but a better name, so McCollum says, is "growth substances."

Time will not permit in this paper to furnish all the experiments by which the knowledge of the various sources from which all growth substances are derived. At present they are known to exist in butter fat, in egg fat, in the fats of the glandular organs such as the kidney, and liver, and widely distributed in natural food, being found in the husks and kernel of all grain, in orange juice and citrus fruits and in most vegetables, especially the leafy parts.

It is further known that some vitamins are soluble in fats, some in water. McCollum and Kennedy proposed the terms, "fat soluble A" and "water soluble B" to designate them, and McCollum believes them to be one and the same substance.

McCollum and Davis found that "the inorganic content of the kernel of wheat, although it furnished all the necessary elements, does not contain enough of certain of these to meet the requirements of a young animal during the growing period," or "to satisfactorily nourish an animal of any age over a long period of time." "Both the growth promoting fat and the trace of unidentified substance in the alcoholic extract of wheat germs are necessary for the promotion of growth, or the preserva-

tion of health." "They also found it is not, therefore, possible to secure appreciable growth in young animals fed exclusively upon seed products as the sole sources of nutriment."

"There is a similarity of most all seeds from a dietary standpoint. Wheat, corn, rice, rolled oats, rye, barley, kaffir corn, millet seed, flaxseed, peas and both the navy and soy beans contain proteins which are of distinctly lower biological value for growth than are the proteins of milk; they are all too poor in the same three inorganic elements, calcium, sodium and chlorine." "It is not therefore possible to secure appreciable growth in young animals fed exclusively upon seed products as the sole source of nutriment." "The appropriate mixtures of leaf and seed make a fairly satisfactory food mixture for the support of growth."

The hog is a typical omnivorous feeder, but it is well known to animal husbandry men that there are but two successful methods of pork production, one of which is to feed growing pigs on grain while on pasture; the other is to feed them milk, skim milk or butter milk along with a grain mixture. The dry leaf usually contains from three to five times as much total ash constituent as does seed, and is always especially rich in just those elements in which the seed is poorest—viz., calcium, sodium and chlorine.

There is underneath the skin of the potato a layer of cells which are alive. Although it has not been subjected to experimental test, it would seem that a potato which is pared in the ordinary way is changed in its dietary properties in much the same way as is the rice kernel during the polishing process.

For omnivorous animals it has been shown that a diet of 50 per cent maize, 30 per cent alfalfa leaves, 20 per cent pease makes the most satisfactory growth, and a serious mistake would not likely be made if always there was variety in feeding.

Milk is the only perfect food for growing young. It is the universal food supplied to most all young in nature. "This is important because the composition of milk is such that when used in combination with other foodstuffs of either animal or vegetable origin, it cor-

rects their dietary deficiencies." It lacks only one element, which is iron, and this nature has stored in the spleen of the newborn. The egg is indeed a complete food, but not one which produces the optimum results when employed as the sole source of nutriment. Eggs when fed alone encourage much more than milk the development of putrefactive organisms in the alimentary tract.

"With the exception of milk, the foods of animal origin do not supplement completely the dietary deficiencies of the seed and their products." "Milk and the leaves of plants are to be regarded as protective foods and should never be omitted from the diet. Milk is a better protective food than are the leaves, when used in appropriate amounts." "Milk which has been heated to 190 degrees F. for ten minutes was found still effective in vitamins, but milk boiled for more than twenty minutes failed to induce a cure in deficiency disease. Raw cabbage was highly effective as a remedy against disease in the guinea pig, whereas cooked or dried cabbage had lost most of its anti-scorbutic property." While this is true of "water soluble B" group, the "fat soluble A" group were not affected by the heat. Boiling of milk for a short time does not destroy the "growth substance."

Meats in dietary properties are comparable with the seed rather than with the leaf of plants. In fact, muscle tissue differs materially from the seed in only one respect, when considered as a food stuff—viz., in the quality of its proteins. These are distinctly better than those of the seeds. The inorganic content, sodium, calcium and chlorine, must be supplemented by the inorganic additions as the seed and the muscle proves to be relatively poor in its content of the unidentified dietary essential, "fat soluble A," as compared with such foods as milk, egg yolk and the leaves of plants.

In the past in selecting and planning a diet, the chemical analysis of a food-stuff has been considered the basis of knowledge of the dietary properties of food, but only by biological methods can we arrive at principles which can serve as safe guides in feeding. The knowledge of both is necessary.

Experiments have proven the amount of

growth from given proteins, but the chemical estimate does not always check in actual feeding experiments. It requires 11 to 12 per cent of the protein in peas or beans to equal 4.5 per cent of oat protein, or 6 per cent of corn, rice or wheat proteins.

Amino-acids are the measure of protein value. When mixtures of two or more proteins having individual low values for the support of growth, they may mutually make good each other's amino-acid deficiencies. The growth making protein in the potato is exceedingly low when fed alone, but when fed with the proteins of cereals, grain, as oats, wheat, rice and corn, it is a valuable food.

Cooking, canning and drying of foods do not cause harmful deterioration. Excess of soda is harmful to the "water solution B" group," but fortunately nature has supplied an excess of vitamins in all grains and vegetables so that ordinary weak solutions of soda used in cooking and ordinary heat, do no great harm. Osborne and Mendel have shown that butter fat may have a blast of steam passed through it for two hours and still retain its peculiar growth-promoting properties, "fat soluble A." Voegtlin and Sullivan found that corn meal cooked with soda was no longer effective in causing the "cure" of beriberi in pigeons.

In summing up at the end of his book, McCollum makes this final statement in italics: "It is now well demonstrated that with the diets employed in Europe and America there is no such thing as a "vitamine" problem other than that of securing an adequate amount of the substance "fat soluble A."

Therefore with plenty of milk and eggs and with vegetables as protein foods, our children can grow, for in them they have all the elements of growth substances needed, for their own bodies and for reproduction. Liberal consumption of all the essential constituents of a normal diet, prompt digestion and absorption and prompt evacuation of the undigested residue from the intestines before extensive absorption of products of bacterial decomposi-

tion of proteins can take place, are the optimum conditions for the maintenance of vigor and the characteristics of youth."

And he ends his chapter, "The Planning of the Diet," by saying: "There is no substitute for milk, and its use should be distinctly increased instead of diminished, regardless of cost. Milk has its value estimated on the basis of its content of protein and energy, but it has its greatest value as a protective food, improving the quality of the diet, which can be estimated only in terms of health and efficiency.' "

Mankind, he says, may be roughly classified into two groups. One group, represented by the Chinese, Japanese and the people of the tropics generally, have employed the leaves of plants as almost their sole protective food. They likewise eat eggs (the Japanese more than we do) and these serve to correct their diets."

The other group includes the people of North America and Europe and a few others. These likewise have made use of the leaves of plants, but in a lesser degree, and have in addition derived a very considerable part of their food supply from milk and its products. Those people who have employed the leaf of the plant as their sole protective food are characterized by small stature, relatively short span of life, high infant mortality and by contented adherence to the employment of the simple mechanical inventions of their forefathers.

The people who have made liberal use of milk as a food have, in contrast, attained greater size, longer life, and have been much more successful in rearing their young. They have been more aggressive than the non-milk using people, and have achieved much greater advancement in literature, science and art. They have developed in a higher degree educational and political systems which offer the greatest opportunity for the individual to develop his powers. Such development has a physiological basis, and there seems every reason to believe that it is fundamentally related to nutrition.

A PLEA FOR EARLY OPERATION IN PUERPERAL INFECTION.*

By J. Hugh Carter, M. D.,
Memphis.

Puerperal infection is simply a wound infection disease, nothing more nor less, and therefore, is surgical. Bacteria that attack surgical wounds will also attack the puerpera. The most frequent bacteria found in puerperal infection are the streptococcus, staphylococcus gonococcus, and the bacillus coli and pyogenes.

The pathology of puerperal infection is the same as in surgical infection or any other wound infection disease. However, the state and condition of the puerpera may be, and usually is, in a more suitable condition for the acute onset of the infection.

The infection may be either from without, exogenous, which I am sure is most common, or from within, endogenous, which, by the way, is more frequent than we once thought. Infection in the puerpera is called by many names, as sapremia, retention fever, child bed fever, toxemia, and septicemia. However, I wish only to speak of the puerperal septicemia, with its resultant sequella, pelvic septic phlebitis.

Dr. A. J. Nyulasy claims that in over fifty per cent of cases of puerperal infection he found a polypoid decidual endometritis present, which was first described by Wierchow in 1861. When we consider that there are over ten thousand deaths from puerperal septicemia in the United States each year, there must be something wrong in our care and treatment of this class of patients. Most of our authorities believe that mortality is even greater, because of the mistakes in diagnosis, and because of diagnosis not made for fear of being accused of not being clean or having left something in the uterus. There may be no fault in this, as we know in many cases infection occurs when the attendant has been aseptically clean and not a particle of placenta left. On the other hand, after a most careful examination

of the placenta, there may be pieces left in utero.

Dr. DeLee claims that in all forms of puerperal infection the death rate is 30 per cent and in true septicemia 75 per cent. This being so, it seems to me that some other method or treatment should be employed in handling these types of cases, to lessen the mortality from septicemia or pelvic septic phlebitis, as I have pleased to term it in this paper, and I believe that is by early surgical interference.

While accepting this view the surgeon will wish or should know how he is to determine the definite indications or symptoms for this interference or operation. First, we should make early and repeated bacteriologic examinations in order to determine the specific organism, if possible, causing the infection; and second, from clinical manifestations of the infectious disease. If the infection takes place before labor is finished, the uterus should be emptied at once, as this condition is a very serious one. If the symptoms of infection begin within thirty-six to forty-eight hours after delivery or miscarriage, the same is true. That is, the earlier the manifestations of the infection appear, the more serious the disease becomes.

One chill at the beginning does not mean so much, but a second chill following a run of fever for several days does mean that the infection is extending. Continuous high fever from the beginning of the infection is a serious symptom, as is a fast weak pulse, or extreme prostration. If the pulse goes above, or I might say, remains above 120 the prognosis is bad. And finally the patient herself, and a careful examination of the condition of the uterus, both from within and without.

The treatment is surgical, but before we proceed we should know, if possible, the specific cause, and if there is a polypoid decidual endometritis.

Dr. Frank Nyulasy says that "polypoid decidual endometritis is an interstitial inflammation of the decidua and partly of the underlying muscle." Therefore if this condition is found, or if there are pieces of retained placenta following abortion or child birth, we should thoroughly clean the uterus out; and if we have reasons to believe there is a thrombophle-

*Read at annual meeting of West Tennessee Medical and Surgical Association at Dyersburg, May, 1920.

bitis of the ovarian veins present, we should immediately open the abdomen and excise them. If there is no septic phlebitis present and we are sure that the focus of infection is still confined to the uterus, a hysterectomy should be done, removing the ovarian veins at the same time. Drainage should be used, as there may be a beginning peritonitis present.

To further explain my position, I wish to report the following two cases:

Mrs. M., age 22, primipara, became a mother August 1, 1916. Labor was normal in every way, both to mother and child. Mother did fine for first three days, when she was taken suddenly with acute pain in right side, simulating an attack of appendicitis, followed by a rise of temperature to 104 in two hours. This was at 9 a. m. A rigor at 10 p. m., with sweat following; another chill at 6 a. m. and fever 103, pulse 120. The pain was still confined to the right side over the appendiceal region. The patient was sent to the Baptist Hospital, and at 1 p. m., after a careful examination was made, we opened the abdomen and removed the right tube, ovary, veins, and the appendix. There was an acute salpingitis, with a phlebitis; the appendix seemed to be slightly inflamed, and so was removed. The left ovarian veins were ligated, but not removed. Drainage was employed.

The next patient was one following an incomplete abortion, Mrs. A., age 36, mother of two children. Had missed her regular monthly sickness for about eight weeks, when she aborted (induced). Two days later had a chill and ran fever for a week, when she had another chill with light sweat following. Fever continued for ten days longer, when I was called to see her. I found a patient very weak, emaciated and running fever from 101 to 104, with a fast and weak pulse. I advised that the patient be sent to hospital, which was done the next day, where we operated upon her, doing a curettment first and immediately a hysterectomy. As we found the uterus very much enlarged and soft to touch, therefore we felt that the focus of infection was still confined to the uterus.

I have always felt if we could get to and remove the focus of infection early in septic cases, as in acute appendicitis, most of our pa-

tients would recover. I believe we should do a curettment only in these cases where we are sure that we have a polypoid decidua endometritis, or where the uterus is not clean.

The beautiful recovery of cases, as I have just recited above, and having seen and heard of so many women dying, following the non-surgical treatment in these types of cases, makes me believe that early surgical interference will reduce the high mortality to at least fifty per cent of what it is at present, if not more. Indeed I believe it is the duty of every surgeon to open the abdomen in puerperal infection as soon as he feels that there is any reason to believe he is dealing with a septic pelvic phlebitis, of course, after he has made a very careful examination of his patient.

A CONSIDERATION OF SYMPTOMS DUE TO INTRACRANIAL PATHOLOGY.

By B. F. Turner, M. D.,
Memphis.

The object of this contribution is to consider briefly pathological conditions of the brain, which may cause symptoms common to pathology or physiological disturbance elsewhere in the body and thereby be misleading in diagnosis.

There are few symptoms of intracranial pathology which taken singly may be relied upon to point out the location of the pathology. But, grouped together, a number of them constitute a syndrome which is reasonably reliable as differentiating intracranial pathology from toxemias and lesions elsewhere.

Headache.—Meningitis, brain abscess, developing neoplasms, hydrocephalus, encephalitis—indeed, most of the intracranial lesions, may be characterized by pain in the head. But so also are many of the toxemias and other disturbances elsewhere in the body. Therefore as a diagnostic symptom headache is of little value except as taken into consideration in conjunction with other symptoms.

Vomiting.—Intracranial lesions may be at-

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tended with this symptom, especially lesions of the cerebellum. Sudden in onset, violent in character and attended with little nausea.

While a large number of peripheral disorders, especially of the digestive tract, are expected to manifest themselves thus, it is always to be borne in mind that this phenomenon may be induced by irritation of the central end of the pneumogastric nerve; and hence it becomes necessary to interpret this symptom in conjunction with others which may suggest central disturbances.

Vertigo.—In conjunction with other symptoms this is always to be regarded as suggestive of lesions involving the eighth nerve and the cerebellum. Like headache and vomiting, it may be due to causes very remote from these structures. Muscular co-ordination is a very important function of them; and the derangement of it is suggestive of cerebral disturbance or cerebellar or auditory nerve disease.

Choked Disk.—This symptom is fairly reliable as indicating pressure within the cranial cavity. We regularly expect the occurrence of increased tension in some kinds of intracranial pathology, especially of tumors; and this will be evidenced by congestion of the retina, as may be determined by use of the ophthalmoscope.

Slow Pulse is the rule in the presence of brain pathology, accompanied by increased intracranial tension. In traumatic cases this may be masked by the rapid pulse of surgical shock. Otherwise it is a reliable symptom of brain pathology when taken in conjunction with other symptoms previously enumerated.

Motor Symptoms.—Of course these should scarcely be misinterpreted. Disturbances of motion can only be due to disorder of the brain, of the spinal cord, or of the peripheral nerves. To distinguish between these three possibilities is relatively easy. Still, when motor disturbances have finally been ascertained to be due to brain disorder there still remains the solution of the problem of whether such brain

disorder is the manifestation of brain pathology or of disturbances elsewhere in the body and manifested by deranged functioning of the brain.

The Reflexes are regularly increased in activity in all sorts of intracranial pathology, due, of course, to the lessening of the inhibitory influence of the brain over muscular tonus.

Disturbance of Sensation, like the disturbances of motion, may or may not be due to intracranial pathology. Hyperaesthesia, anaesthesia, or paresthesia, of any degree, may be present in brain pathology or in spinal cord or in peripheral nerve pathology or in various toxemias—e. g., a “sciatica” of infectious origin, the peripheral pains of tabes, and disease at the cerebello-pontine angle might so nearly resemble each other as to be confusing if only the symptom of pain were taken into consideration. But if, in addition to the pain, vomiting, or vertigo, or choked disk were also present, a suspicion of cerebral pathology would be justified; and if two or more were present the suspicion would amount to a certainty.

By employing lumbar puncture and the use of the manometer pressure due to intracranial tension may, in some cases, be estimated.

A brief consideration of the symptoms outlined above would indicate that there is no one of them which, by itself, can be more than merely suggestive of the presence of intracranial pathology. But the occurrence of two or more of them, taken together, would be strongly suggestive if not conclusive evidence.

Once pathology has been located in the brain it may be a matter of much difficulty to point out its exact location. Reliable estimates are, I believe, to the effect that 30 per cent of brain tumors are never located. This is due to the incompressibility of the brain substance whereby, in cases of increased intracranial pressure the pressure is distributed equally in all directions. On the other hand, lesions of areas of well-established function in the brain are relatively easy to locate.

SOME PRACTICAL POINTS IN FRACTURES.*

By J. P. Baird, M. D.,
Dyersburg.

In bringing up for consideration and discussion, "Some Practical Points on Fractures," I have endeavored to choose a subject which is equally of interest to the general practitioner and the surgeon. Frequently both have to share the responsibility.

No subject, I'm sure, is of so much concern and can cause so much worry and anxiety as the ultimate result of a fracture. I remember too well most of the cases of such coming in my first few years of practice were anything but pleasant, sometimes almost a nightmare. The anxiety, doubt of perfect results, and even possibility of lawsuits remained throughout the whole period of treatment, and by far outweighed the financial benefit received, if indeed even a moderate fee could be collected. Considerable time was spent in uselessly memorizing the various kinds of fractures, who had named them, and a great variety and kind of splints used for this or that fracture, instead of simply remembering the normal alignment of the bone, then getting and permanently maintaining the same.

In mentioning a few points to help eliminate the above difficulties I will not try to give any original ideas at all, but only review the suggestions of others which some experience of my own shows me to be of real practical value. Modern and somewhat ancient textbooks and papers too numerous to mention are duly credited with every idea suggested. It goes without saying that the anatomical form of the bone involved must be accurately known for its correct alignment, therefore to those who endeavor to treat fractures I would suggest more study of the bones and less attention to the kinds and names of splints suggested for use in the various fractures.

Absolute alignment of the fractured ends or parts is to be desired, and this can best

be done by the appropriate use of the x-ray, of which I shall say more before closing. This correct position can of course be relatively attained by the ordinarily experienced sense of touch, sometimes, but it is frequently "guessed at" and missed. Fair functional results sometimes, of course, follow only a partially perfect alignment, but, when alignment and position is perfect the maintenance of that position is more certain and results more perfect.

Equally important as first getting the correct position is keeping the exact tension and parts quiet while the permanent dressings are applied. This point is one of the hardest to attain in general practice, and is completely overcome by the use in many cases of the Hawley or some similar fracture or orthopedic table. Especially reducing the fractures of the larger bones, with strong muscle action to overcome, it is almost impossible without some such apparatus to maintain the correct position, even with numerous assistants, long enough to apply the proper splints or dressings. With such a table I find reduction and maintenance of position for application of splints comparatively easy and accurate.

Needless to say, any fracture of importance should undergo reduction only after a complete anaesthetic (barring contra-indications for same), not alone to protect the patient from pain and shock and to insure muscular relaxation, but to allow a more perfect coaptation with less damage to the contiguous soft parts. The more perfect fitting and interlocking of the splintered ends, the less danger of slipping out of position during bandaging and during the process of repair.

The time for making the reduction should be as soon as possible after the injury, and completely accomplished to prevent subsequent attempts, each of which adds shock, injury to surrounding parts, and encourages more hemorrhage and exudates. The soon coaptation and quiet are assured, the less effusion and the better the chances for speedy and perfect recovery. After reduction and before fixation of the limb the position which most nearly relaxes all muscles acting on the fragments should be chosen as nearly as possible.

*Read at meeting of West Tennessee Medical and Surgical Association, Jackson, May, 1920.

In such position bandaging may be more loosely applied with less chance of subsequent dislocation of the parts.

When ready for application of the splints, or cast, or dressings of individual choice, it is not necessary to apply same tightly enough to cause worry about pressure necrosis, if applied evenly and properly. Tight bandaging directly over the point of fracture is too frequently practiced, is wrong and unnecessary. I have seen some unfortunate sloughs from that practice. Fractured ends should not be expected to be held in apposition by tight short splints or casings, but rather by loose, long dressings extended to and over the first points on either side of the fractured bones, completely immobilizing these contiguous joints. This rule of fixing completely the first joint on each side of the fracture is not often enough emphasized, and I want to repeat this as important; in fact, it has been to me the most satisfactory point of all my experience in the treatment of fractures. If reduction has been perfect and this rule carried out, there is no possible chance of displacement occurring. You can rest easy on that point.

The choice of splints is largely a matter of choice by the individual surgeon. Properly padded splints and plaster paris casings are my choice. Ready made splints for certain joints and fracture made in two or three different sizes cannot fit as perfectly as light board splints properly padded or plaster casings carefully fitted for each individual case.

As to the length of time for removal of splints opinions differ widely. Naturally, too long confinement with absolute rest of muscles, tendons and joints cause atrophy, weakness and stiffness, and to prevent this some have advised early removal of splints for massage. This must be done very carefully and not too early, for some, no doubt, have been too enthusiastic. Harm may be done by starting massage too early and taking chances on recurrence of the misplacement. Personally, I am more afraid of bad results from an early than from a late removal of splints.

Splints and plaster casings can be so divided that a portion of the limb may be carefully exposed and properly massaged after

only a few days, if done without disturbing the relation of the uniting fragments, the treatments becoming more frequent and lengthy as time progresses. At least one-half of the splint should support the side of the limb, and well balanced judgment and care exercised. A very little movement of the fragments seems to be of no disadvantage to solid union. Undoubtedly a limb will resume normal function a little sooner under this treatment, the nourishment and strength of same having been conserved.

Dr. Bristow, of London, an English surgeon, claims good results completely overcoming these bad results of the splints by "graduated contraction" or faradization of confined muscles and nerves, exercising them without the danger of complete removal of the splints. This is more reasonable and less dangerous in the early stages (first two weeks) of fracture treatment.

As to the open and closed methods of treatment I wish to add a word of caution against hastily choosing the open operation. It frequently becomes necessary for results, but should be seriously considered if coaptation and retention can be acquired by the ordinary method. Asepsis is essential, and a little slip in the technic will sometimes allow infection and very disastrous results; therefore, if in doubt, don't open the wound. However, should the skiagraph show a condition which undoubtedly would be more effectually and safely treated by an open operation, to make a complete coaptation of badly traumatized or complicated condition of the fragments, such a procedure should be undertaken and usually gives remarkable results. The material used in binding fragments together, however, should be ligatures which absorb in a reasonable length of time, together with bone pegs and bone slats. Metal plates and ligature, once used quite freely, should never be used. This, with scrupulous attention to aseptic technic in many cases, gets results not possible without an open operation.

I want to emphasize a point made by Dr. Newell two or three years ago in a paper read before this society on fractures, in which he advised no manipulations of the parts or attempt at alignment until after an x-ray pic-

ture had been taken. This is very important. Needless pain is produced, increased irritation, inflammation, exudation, etc., brought about, and even injury to nerves, vessels, muscles, and the converting of a simple into a compound infected fracture is possible, by "guessing at" and manipulating to determine what kind of a fracture is present and making unnecessary and repeated attempts to correct a displacement the exact nature of which you are in doubt about. The sensible, sane thing to do is to temporarily completely immobilize the parts, simply to prevent further traumatism while being immediately transported to an x-ray for an exact diagnosis and repair under the guidance of the fluoroscope or skiagrams. Then no unnecessary movement should be made in alignment, and no doubt should exist after fixation, because it is possible to immediately determine whether you are right or wrong. Many of us have gone through the long period of one or two months time waiting for the time to elapse when we could thoroughly test out one of our cases under treatment to be sure that we were really going to get union and a limb that we would not be ashamed to "look in the face." Possibly all during this time uncertain whether or not possible grounds were present and would later plainly show, which might furnish the enterprising "shyster" lawyer and ungrateful patient good grounds for a most troublesome and disagreeable damage suit. This point may with profit be kept in mind; primarily, of course, for the benefit of the patient by more scientific and exact treatment, but incidentally for our own protection, as it is a well recognized legal fact that a surgeon must employ the degree of knowledge customary in the surrounding country, or the average ability and accepted methods of treatment in the community, or a damage suit would easily be won against one not employing the same. Consequently, with x-ray machines of varying power situated in easy reach of every community it is a matter of personal safety as well as a duty to the patient that we should use the x-ray.

In conclusion I want to briefly emphasize again two of the agencies which have almost relieved the treatment of fractures of its un-

pleasantness and uncertainty and made their treatment interesting and more or less pleasant.

Of course with every known method of certainty and convenience the care of most fractures are anything but minor operations and procedures and require more skill, patience and mechanical ability than many other so-called major operations, and for that reason I believe they should be given a more prominent place when considering their treatment and care.

So if we, in addition to the methods which have been in use to a greater or less degree for generations, take advantage of the use of one of the improved and thoroughly perfected orthopedic tables, on which for fractures we can get perfect extension and counter-extension, holding same in position easily and comfortably for an indefinite period without strain or inconvenience to the surgeon or assistants while splints and casts are carefully applied, we soon find we have a most valuable agent in the progressive treatment of bone injuries. Then if, in conjunction with this, we use the radiogram direct, or preferably stereoscopic alignment, to show the exact movement for replacement, when it is in position, and whether or not it remains in good position, we are using the necessary agencies to remove both physical and mental strain and give the patient the very best possible chance for a perfect recovery which otherwise frequently could not have resulted.

CLINICAL REPORTS

CASE REPORTS.

By M. H. Lee, M. D.,
Bearden.

Case 1.—Mrs. B., age 33, married and the mother of nine children, six living and healthy. Was five and one-half months pregnant and had gotten along so far very well. On the morning of June 25, 1920, after having expressed herself as feeling better than usual that morning, she was suddenly seized with a faintness and sank to the floor, while engaged in sweeping. After being lifted and

placed in bed and when consciousness had returned she expressed herself as suffering slight uterine pains, and there was possibly a show or tinge of blood.

I arrived at the home about one and one-half hours later, found patient sitting up and suffering practically no pain, very pale, rapid, weak pulse, some perspiration and abdomen distended far beyond a five and one-half months normal pregnancy. Examination revealed the fact that there was no dilatation, and only a tinge of blood, so I gave a hypodermic of the H. M. C., full strength. After waiting a couple of hours another examination was made, which revealed nothing more than the first, except a more distended uterus, extreme weakness, profuse sweating and paleness to exsanguination. Then I told patient and family that she had internal hemorrhage and that she might have to go to the hospital, but before we decided on that I would like to have consultation. Dr. A. G. Kern, of Knoxville, was called, who decided at once that she was a fit subject for the hospital, and the sooner she got there the better her chances would be for recovery. So we gave another H. M. C. tablet per oram and agreed to meet at the hospital at 6 p. m. The patient arrived in due time in a "Ford," and in about the same condition that she was three hours earlier, except there was more abdominal distension.

Diagnosis: Three or four conditions were considered and discussed. Extra-uterine pregnancy with rupture, pedicle-cyst, and intra-uterine hemorrhage. Owing to the symmetry and rapid distension of the abdomen, the first three mentioned conditions were practically eliminated, and intra-uterine hemorrhage, caused probably by a detached placenta, was diagnosed.

A Caesarean section revealed the fact that there was a complete detachment of the placenta, and the great distension was caused by an intra-uterine hemorrhage. This patient left the hospital in about ten days in fine condition, and soon after reaching home developed a phlegmasia in the left leg and a week later, in the right leg. The pain was most excruciating, but was well borne. At present

there is only slight swelling in feet and legs. The woman is doing her housework and glad she is living.

Case 2.—July 23, 1920.—Mrs. C., aged 29, married, and mother of nine children, all healthy, called me to relieve a severe pain in the right side and abdomen. The history revealed the fact that the patient had been delivered of a baby just six weeks prior to this time, and that she had gotten along only fairly well. The midwife said "she has taken her death of cold."

Examination elicited the fact that the patient had a septic fever, most likely of puerperal origin, and pleurisy of right side, also septic. Temperature, 103; pulse, 120; respiration, 40. A very tender and much distended abdomen and a foul-smelling sanguino-purulent discharge from vagina. The patient had had an anxious, woe-begone look, was perspiring and unable to lie down. I instituted treatment for what I found and thought I found enough; patient progressed fairly well, but not as well as I thought she should, so we sent for a doctor. When he arrived he proceeded to make a thorough examination, and by so doing he found a pneumonia in the lower lobe of the right lung, probably of septic origin. We continued the treatment and the woman made a good recovery.

Now the point I want to impress on this society is that we should **examine** our patients. I would have found that pneumonia if I had gone on with my examination. Another thing let us all do: that is, report some of our mistakes and thereby help keep our brother practitioner from making the same mistakes.

TOXICITY OF ARSPHENAMINE.

Roth has determined that if an alkalized solution of arspenamine or a solution of neo-arsphenamine is shaken in the presence of air for one minute, the toxicity is increased. He points out that arspenamine preparations which are soluble with difficulty are likely to be shaken to aid in the solution of the drug with the risk that chemical reaction may occur.—*Jour. A. M. T.*, Oct. 16, 1920, p. 1072.

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EDITORIALS

INCREASE IN ANNUAL DUES.

County Secretaries are here reminded that the House of Delegates of the Tennessee State Medical Association at the last annual meeting increased the annual dues of members from \$2.00 to \$4.00. This action was made necessary by reason of the fact that the present day scale of prices and costs is entirely out of line with the possible income of the Association on the basis of a \$2.00 membership assessment. The cost of printing the Journal has gone steadily up, and there is no indication that it will be possible at any early time to reduce the cost of publication. It has been necessary, as it has been right, to increase the salary of the clerical assistant to the State Secretary. All materials of every sort that are needed for carrying on the business of the Association are secured only at costs largely in excess of those which have heretofore applied. The only items which have not increased are the honorarium paid to the Treasurer and the salary of the Secretary-Editor. No increases have been asked for in these two items, and none will be asked for nor accepted as long as the present officers are in service.

While attending a conference of State Secretaries with the Board of Trustees and officers of the American Medical Association at Chicago recently held, we made some inquiries concerning the annual membership dues of other state associations. We found that in every instance where inquiry was made that dues have been increased and that in no state association asked about are the dues as small as in our own. Several state associations have \$6.00 dues and some have as high as \$10.00.

Our membership at this time is the largest we have ever had. The Tennessee State Med-

ical Association has been made a going concern, and this has been done at small cost to individual members. It must be kept going and must go further in the distribution of benefits to its members and through them to the people served by its members. Within a few years now the Tennessee State Medical Association will celebrate its one hundredth anniversary. When the time for that celebration comes it should find us with every eligible doctor in Tennessee embraced within our membership, and the Association should have by that time have won for itself recognition as an organization of great influence for good throughout our state. It has already won such recognition to a certain extent, but neither the possibilities for service nor for glory have been nearly exhausted. We must strive to grow and to extend our sphere of usefulness. Increased growth implies and demands increased sustenance, which means increased maintenance costs. We cannot operate a 1920 organization on a 1910 budget.

The officers of our county societies should begin their 1921 membership drives now. It will be most unfortunate if any of our strength is lost. The prediction has been made in certain quarters that the increase which has been made in the annual membership dues will lead to a reduction in the number of members. We hope that this prophecy will fail, as it should fail. If membership in our county societies and in the State Association and in the American Medical Association is not worth \$4.00 to any member, it is probable that a large part of the fault is his own.

DIPHTHERIA.

Before the days of the use of diphtheria antitoxin, it is said that more than 60 per cent of children who had diphtheria died from the disease. Since the curative value of antitoxin came to be conclusively demonstrated, the mortality from diphtheria has shown a very wonderful decrease throughout the whole world. It is quite evident, however, that the advantage that was once held over this disease of children has not been well maintained in late years. The diphtheria death rate is going up year by year. Most of the increase, if not all, in the

death rate seems to be due to the deaths from diphtheria which have occurred outside the larger centers of population. The indications are that the use of antitoxin is promptly resorted to in the cities and not in the smaller centers and in the country. There are, probably, several reasons for the disparity in urban and rural diphtheria death rates, but the outstanding fundamental cause of the difference seems to be as stated above—antitoxin is not used as promptly in the country as it should be.

Of course, the country physician is at a disadvantage, comparatively speaking, with the city doctor in the matter of getting to his case promptly. It is more difficult, too, for the country physician to secure antitoxin just when he wants it than it is for the man who has only to turn to the telephone and have antitoxin sent to him within a few minutes. There is a tendency, it seems, for the call for the doctor to be delayed in the country and so it happens that the diphtheria patient is not seen as early in the course of diphtheria as is the city patient. And even when the call comes to the country physician it may be hours before he can possibly reach his patient. All of these things are factors more or less important in bringing about delay in the proper use of antitoxin outside the cities. But, as we have learned from recent first-hand observation, there are still some doctors in the country who fail to make the proper diagnosis in diphtheria and who delay the use of antitoxin in a manner that is unjustifiable. There is also to be found, here and there, the man who puts off the use of antitoxin until a laboratory report can be had, which is a procedure that is in all ways unjustifiable if diphtheria is known to be incipient. It is always best to take no chances where diphtheria is a possibility. Give antitoxin, get a swab and have the laboratory diagnosis afterward.

It is a lamentable fact that many physicians positively ignore the performance of the duty placed upon them by the law of the state with respect to the reporting of cases of communicable disease. There can be no doubt but that this disregard of the law has been entirely responsible for the dissemination of such disease in numerous instances. Within the very recent past the writer has personally seen a num-

ber of cases of diphtheria which had never been reported to health officers and where no semblance of quarantine measures had been instituted. The rooms in which these cases were confined were full of visitors—men, women and children—and children from the homes visited were going daily to school direct from infected premises. Some of our doctor friends who have failed to report have attempted to justify their disregard for the law on the basis that when they have reported cases health officers have not instituted quarantine nor taken other indicated and necessary action. The answer to that is that failure to perform duty upon the part of another is not a valid reason for a similar failure upon our own part. One way to secure efficiency upon the part of public officials is to pile on them work that they ought to do and demand that it be done.

Away back in September the State Board of Health, having secured information to the effect that diphtheria was unusually prevalent in this state and with information from other states that like conditions existed elsewhere, gave urgent warning through the press and through official channels that there was danger of a widespread dissemination of diphtheria. Steps were taken to see to it that a plentiful supply of antitoxin should be placed in the hands of dealers. Since that time, at intervals, the State Board of Health has repeated its warnings. In spite of all and in spite of the fact that diphtheria continued to spread, the month of October showed what is believed to be a record "wave" of diphtheria. The indications are that November will show little better.

There is something radically wrong in any community, city or state, in which high diphtheria death rates are permitted to continue. Antitoxin very nearly approaches the status of a specific in the treatment of diphtheria when it is used in proper amounts at the right time. A proper amount is always a big dose and the right time, exactly, when diphtheria is at all strongly suspected. If any fault attaches to the medical profession in this matter of continued high diphtheria mortality it can be corrected by the making of better diagnoses and by the right use of antitoxin and by making prompt reports to health officers. If any fault attaches to the health officer, he can correct it by

"getting on the job" quickly, instituting the right quarantine, and giving proper instructions to the family concerned and to the general public.

But after all else is said, it still remains a fact that only through the establishment and proper maintenance of strong state, county and municipal health departments which will have facilities for good work and which will do the work that is theirs to do will the control of communicable diseases be effected. And such departments will always fail unless they can have the complete cooperation, not to say leadership, of the medical profession.

DRUG ADDICTION.

These United States of ours use an enormous amount of habit-forming drugs. In proportion to its population our country consumes more of such drugs than any other. According to a report made by the Federal Investigating Committee, our annual consumption of opium amounts to 470,000 pounds—enough to provide nearly forty one-grain doses for each person in the land. The importation of coca leaves into the United States each year is in amount sufficient to produce 150,000 ounces—enough for each individual in the country to have two and one-half doses. The figures above given take no account of the unknown but very large quantities of opium and coca leaves and of alkaloids that are smuggled into the country.

Inasmuch as the ordinary citizen never takes nor has given to him any opium or opium derivative from one year's end to the next, it is evident that most of the enormous amount of opium used in the United States goes to satisfy the cravings of those addicted to its use. The report of the Federal Investigating Committee estimates the legitimate use of cocaine in medical and dental practice as accounting for only 25 per cent of the total quantity consumed, leaving, therefore, an enormous amount for the use of addicts.

It is to be doubted that even the medical profession appreciates fully the tremendous proportions of the subject of drug addiction. The second annual report of the Narcotic Drug Central Commission of New York presents some facts that can but astound any who has

not had opportunity to observe conditions at first hand. Estimating the total number of confirmed drug addicts in New York at 39,000, the report of this Commission states, "the larger the center of population, the greater the percentage of addicts." We have no doubt but that statement is true of New York State. We wonder if it would hold good for Tennessee?

More than 90 per cent of New York City's drug users, says the report of the Commission, are heroin addicts, while 93 per cent of the addicts in other parts of the state are users of morphine. Why is heroin? Has it any quality whatsoever which will outweigh its evil tendency to make slaves of its users? We think not. Even though heroin were absolutely known to be the best cough controller in all the world, we would still hold out for its complete and everlasting ablation from the list of therapeutic agents. The heroin habit is the most difficult of all drug habits to cure, and the effects of this awful stuff are far worse than the effects of other habit-forming drugs. Most of its victims, too, are young persons who very quickly acquire the habit. The crop of heroin addicts which has been grown in this country within a few years has not been confined to the largest cities by any means. The ease with which the drug is secured anywhere adds greatly to its dangers.

The New York Commission has found numerous instances in which the drug-using mother drugs her babies. The writer has himself seen in the city of Nashville, Tennessee, two families, in each of which were several young children, all of whom were stretched out in the stupefaction of drugs given them by their parents to keep them quiet while their elders enjoyed their dissipation.

As to the age grouping of drug addicts, the New York Commission's report shows that about 70 per cent are under thirty. Ten per cent of the total number studied are less than twenty, 29 per cent between twenty and twenty-five, and 30 per cent between twenty-five and thirty. Only 6 per cent are over forty, and just 1 per cent over fifty.

Self-medication is given as one of the most important factors in the production of drug addiction by the report which serves as the

basis for this writing. The careless use of habit-forming drugs by physicians in their every-day practice is given prominent mention in this connection. Blair, of the Bureau of Drug Control of Pennsylvania, is quoted as follows: "So far as our findings in Pennsylvania are concerned, the free prescribing of narcotics in ordinary medical and surgical cases is one of the main etiological factors in the production of drug addiction." We believe that Dr. Blair overstates the case, but we are convinced, nevertheless, that there are many doctors who are altogether reckless in the dispensing, prescribing or administration of habit-forming drugs. There are nurses, too, who are fond of ease and comfort and secure these things for themselves by the simple process of putting their patients to sleep.

The so-called "ambulatory method" of the treatment of drug addiction is condemned by the New York Commissioner as hopeless of good results, and institutional treatment is held to be the only method worth while. We do not find in the report any discussion of the details of treatment—gradual or immediate withdrawal of the drugs, etc. To our way of thinking, the way to stop drug using is to take the drug away from the user. All of them will suffer, some of them will suffer a great deal, and in rare instances it will be found necessary to put back the drug for a little while. But nearly always the distress occasioned by immediate withdrawal will be over in a day or two and the patient will put on flesh and strength in a wonderful way. The best drug addiction hospitals we have ever seen were a jail and a workhouse.

If we should be called upon to construct a "platform" dealing with this subject some of our planks would be:

The administration of narcotics by physicians only where there are very positive indications.

The absolute destruction of every grain of heroin in all the world and absolute prohibition of its manufacture.

Capital punishment for the "bootlegger," whether he be licensed physician, druggist, or gangster, or even though he be one of those great philanthropists and scientists who has devised a marvelous "method" for "curing"

drug addicts and has established a great "hospital" for their entertainment and for his own profit.

Prohibition of the sale of all nostrums containing habit-forming drugs.

Even these measures, with others that might be proposed, would not entirely control the situation, but they would help some.

CONFERENCE OF STATE SECRETARIES.

A conference of the Secretaries of State Medical Associations with the Trustees and other officers of the American Medical Association was held at Chicago on November 11-12. Thirty-four state organizations out of forty-nine—the Medical Society of the District of Columbia included—were represented at this conference. The Tennessee Secretary was there and came back to his work with a head full of things learned about the operations of other state organizations, with a heart full of inspiration, with a fuller realization of the meaning of medical organization and of the necessity for better organization, with a far larger comprehension and appreciation of the great work of the American Medical Association, and with a feeling of gratitude for having been privileged to come into closer contact with the officers of that society and the Secretaries of its component units. The man who could attend a conference like that here written about and not come to realize that a wonderful work has been done through medical organization in these United States cannot be better than a fool; and he who could attend that same conference and not come to understand that a yet larger work remains to be done cannot but be a worse fool.

There were two days of grinding work at the conference. There was nothing formal about it. Every man there was free to express himself. Most of them did. Many things were talked about and there was much talk. Out of it all the careful listener got a great deal of information and a great many most helpful suggestions. One of the outstanding impressions that we brought away with us was to the effect that the men who are doing the real work of medical organization in the state societies and in the national body are mightily in earnest about the jobs they have been

given to do and that they mean to do those jobs if it is humanly possible.

The subjects discussed at the conference covered a very wide range. The question of over-organization through a multiplicity of societies was discussed. One who heard the discussion could but be convinced that in the scheme embracing the county medical society, the state medical organization and the national association, there is furnished all the machinery necessary for serving the general interests of the profession of medicine in this great land. Moreover, these interests will be served best when, and not until this very scheme is operated as it was meant to be operated. That means when every county medical society—including **yours**—works as it ought to work. If the county societies work, the others must work. If the county societies do not work, the others cannot.

Medical defense, the lay secretary for state associations, medical benevolences, budgets for state societies, postgraduate instruction for members, state journals, state councilors, county hospitals, the relations of the profession to the general public, the matter of providing medical instruction for the public, questions pertaining to public health, organization details, and a great many other important subjects were discussed very freely.

State Secretaries in attendance were given opportunity to go through the splendid plant of the American Medical Association and to look into the details of the operation of this great concern. Those who had never had this opportunity before were greatly impressed. It would be fine if every doctor in this country could go and see what is being done by the American Medical Association and just how it is being done. The man who does go will find that in doing what is being done the officers of the Association are keenly mindful of many things that need to be done and that they are planning and working to get into position to do some of them.

Listening to discussions on the floor of the conference and from things learned in conversation with many Secretaries we found out that Tennessee has laid the foundation for a real sure-enough state medical association and that in some things we are doing quite well, while in other matters we are lagging behind

some of our sister states. Of one thing we are firmly convinced: We **can** do anything worth doing that any of the others are doing. It's simply a matter of having the splendid membership we have to determine to do.

THE ILLEGITIMATE CHILD.

Optimists believe that we are growing more broad-minded while pessimists say we have not progressed one iota in making the world a more pleasant place to live in. The Great War brought on many perplexing and exasperating mental entanglements which, thanks to the searching light turned on them, are wearing off, and occasionally an idea stands before us to enlist our approbation or condemnation. If the war did one thing that was commendable it was this: it awakened men to the notice of the downtrodden and especially those unfortunates who, on account of hidebound prejudice, made acrid with hypocrisy and cheat, were compelled to give up their fight for a place in society.

Of all the recent ideas, the most engaging one has for its purpose the restitution to society of the so-called illegitimate child and the recognition of the dishonored mother. There is no such thing as an illegitimate child—only the parents are illegitimate. Knowing this, the British Government has recently taken up the matter in a way that commands the admiration of the rest of the world, especially our own United States. The bastardy bill for 1920 is a humane bill in that it embodies the forces necessary to tear apart that custom which has kept so-called respectable people on one side and so-called disreputable ones on the other. The intent of the bill is that the child of an illegitimate mating shall no longer be under protection of state and philanthropic institutions; that the father shall share parental responsibility; that when paternity cannot be proven it devolves upon Parliament to maintain and educate the child until the age of sixteen. With this law in effect the disgrace of the mother will no longer be a sweet morsel under the tongues of the community gossips, for motherhood is restored to the girl in such a manner that motherhood will have all of the respectable accoutrements that make respectable motherhood. The fa-

ther will not as hitherto escape the blame, and this, in itself, will make men more careful as to exercising the privilege of brushing aside all responsibility regarding the results of their "sexual wanderings." But, best of all, the child will be a ward of the court, whether or not the putative father or mother can be located.

In this country the child should be stringently legislated for—our laws should be modernized. There should be uniform provision for the establishment of legitimacy; the legitimization of children of null and subsequent marriages; the possibility of adoption by the father; the declaration that the relation of the mother and child is the same, whether of legitimate union or not. II.

MACON COUNTY MEMBERS.

Somehow or other the names of the members of the Macon County Medical Society were omitted from the list of members of the Association which was printed in the Journal in September. We regret this omission, but here they are:

Drs. M. H. Allen, P. East, J. Y. Freeman, D. D. Howser, Lafayette; H. C. Hesson, Red Boiling Springs; A. Y. Kirby, H. C. Smith, and W. W. Tucker, Lafayette.

THE DECEMBER CANCER PROGRAM.

A letter was sent in October to every county society secretary in the state asking that cancer be made the subject of the program for December. Replies have been received from about half the county secretaries. All who have taken the trouble to reply to the letter, which was signed by the president and the secretary of the State Association, have agreed to comply with the request and it therefore follows that this most important subject—cancer—will be brought forcibly to the attention of a large number of Tennessee physicians.

There has been a gradual but certain increase in the number of deaths due to malignancy during the last six years. Tennessee's cancer death rate, while not as high as the rates of some other states, is constantly growing. Whatever the reason for this may

be, however numerous and wide-apart our varying opinions concerning the nature of this disease, it yet is necessary that we should study cancer and should have the importance of early diagnosis, early and right treatment, and the possibilities of prevention brought frequently to mind.

It is to be hoped that every county medical society in Tennessee will study cancer at the December meetings.

NOTES AND COMMENT.

"The truth pure and simple" is a rather common expression. In fact, truth is rarely pure and never simple. Modern life would be very tedious if it were either and modern literature a complete impossibility.

Apparently men of the future will have risen from the ranks of professionalism or from the purple of industry. They will be referred to as having the parentage of a "poor but honest" physician or of a "prominent and influential" plumber.

The anti-vivisectionists carried their propositions to a popular vote in California and lost. They may be depended upon, however, to try again somewhere else. Our faith in the common sense of the American people impels us to believe that the result in California will be duplicated wherever the faddists try their next time.

When leg ulcers fail to heal to the usual treatment try a Wassermann. Maybe a specific will be indicated.

The indolent sore on the finger of nurse or physician or dentist is all too often the precursor of systemic spirochaetal infection.

No man can be fully informed as to the efficiency of his treatment of the syphilitic without at least an occasional Wassermann.

It is a gross injustice to the patient to diagnose a skin lesion as non-luetic simply because the "copper" color is not present. The skin manifestations of syphilis are multiform.

Seamberg has recently proven that the kidney is more susceptible to mercury than to arsenic.

Thirty minutes after the administration of .4 gms of salvarsan 75 per cent has been taken up by the body cells.

The Physicians and Surgeons Adjusting Association, Railway Exchange Building, Kansas City, Mo., issues free membership certificates to doctors patronizing the Association's collection service. The idea is proving attractive to many doctors, according to F. F. Hoard, Controller, who says: "Merchants and others form associations for mutual protection against delinquent debtors. The Association provides much the same service for medical men." The Association's announcement appearing in another column is self-explanatory.

MISCELLANEOUS

TANNIN COMPOUNDS USED AS INTESTINAL ASTRINGENTS.

On account of the irritant action of tannic acid on the stomach, a number of tannic acid compounds have been introduced which are assumed to pass the stomach practically unchanged but are broken up in the intestines with liberation of the tannic acid. Working in the A. M. A. Chemical Laboratory, P. N. Leech has made a study of the tannin compounds described in New and Nonofficial Remedies, and also of some recently introduced American products, to determine whether they are largely unchanged by action of gastric juice, and if so, whether they are capable of decomposition by the intestinal juice. For this purpose he determined the solubility of each compound in water and hydrochloric acid solution, acid and pepsin solution, and sodium bicarbonate and pancreatic extract solution. Only one type of tannic acid compounds studied completely resists the action of the gastric juice and is broken down in the intestine according to theory—i. e., the diacetyl tannin acid compound acetannin. Tannigen is fairly satisfactory, but the market supply is not of reliable composition. Pro-

tar and tannoform are both readily soluble in sodium bicarbonate mediums, but they are probably not broken up to a great extent in the intestine. Of the tannin albuminates Albutannin-Caleo and Albutannin-M. C. W. are not nearly so resistant to the acid-pepsin digestion as tannalbin and tannic albuminate extracted. Both tannalbin and tannic albuminate extracted (the latter now sold as Albutannin-Merek) are not particularly resistant to the acid-pepsin medium but they do liberate free tannic acid in the alkaline pancreatic medium.—*Jour. A. M. A.*, Oct. 23, 1920, p. 1120.

THE USE OF ARSPHENAMINE AND RELATED COMPOUNDS.

Many therapeutic perplexities remain after nearly a decade of trial of the type of compound which Ehrlich introduced. It is well for the practitioner to realize this, especially when expert workers still make an appeal for conservative interpretation. Arspenamine has apparently made it possible or even probable, but only to the inexperienced that the cure of syphilis been made absolute and inevitable. Even the composition of arspenamine and neoarsphenamine is not fully known, and the control of the products by the government is important. It should be borne in mind also that neoarsphenamine behaves differently in the animal organism from arspenamine and should not be regarded simply as arspenamine in a convenient form for administration. The various brands of arspenamine and neoarsphenamine made in the United States compare favorably as to toxicity with those made abroad.—*Jour. A. M. A.*, Oct. 9, 1920, page 1005.

THE TREATMENT OF SHOCK.

That the surgeon has in adrenaline a dependable means of combating shock has been known to the profession for a number of years. As long ago as 1909 Mummery and Symes announced their observations on the effects of adrenalin upon the blood pressure and recommended its use by the slow and continuous injection of a very weak solution into a peripheral vein. They also found that the action of adrenalin is enhanced by the

coincidental administration of pituitrin, this procedure producing a more marked effect in shocked animals than in normal subjects.

In our advertising section, under the title "Adrenalin in Medicine," will be found a brief review of the plan of treating shock with highly diluted solutions of adrenalin chloride, by intravenous infusion and by "centripetal arterial transfusion," after the method of Crile.

This little essay is the third of a series of concise and informative papers published in this rather unconventional form by Parke, Davis & Co. We have no hesitation in commending these meritorious articles to the consideration of our readers.

LOCAL REGISTRARS OF VITAL STATISTICS (Continued).

Perry County.—Civil District No. 1, Jas. Whitson, Pope, Tenn.; Civil District No. 2, J. H. Nix, Pope, Tenn., R. 1; Civil District No. 3, N. C. Hufstедler, Linden, Tenn.; Civil District No. 4, W. A. Bone, Lobelville, Tenn.

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HODGKIN'S DISEASE: WITH REPORT OF A CASE OF THE PEL- EBSTEIN TYPE.*

By W. H. Cheney, M. D., and
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Chattanooga.

It is the purpose of this paper to briefly review the literature on Hodgkin's disease, with particular attention to those cases of the recurrent fever type described by Pel and Ebstein, and to report a case presenting the clinical symptoms of this type which has lately come under our observation.

Hodgkin (1) in 1832 reported a series of seven unusual cases of glandular enlargement that had come under his observation at Guy's Hospital, London. He did not make a critical analysis of the cases and probably was not aware that one or two of his cases were examples of a rare disease. The others were probably tuberculosis, syphilis or leukemia.

Wilks (2) in 1856 and again in 1865 (3) reported several cases and gave a more complete and accurate description of the condition than Hodgkin had done. He noted that there was a glandular enlargement, which was progressive, and usually began in the cervical region and resulted in fatal cachexia. He also noted that the white blood corpuscles were not materially increased. Since Wilk's second article in 1865, much has been written on Hodgkin's disease, but the other early writings added little real knowledge and

those who are particularly interested are referred to some of the more extensive articles for review of this literature, notably those by Reed (4) and Longcope (5).

Many names have been applied to the condition known as Hodgkin's disease and many explanations offered as to the cause. Wilks first suggested the name of Hodgkin's disease and this is possibly more suitable than a name that attempts to describe the pathological picture of the gland. It is the name that has very generally been accepted as applying to an affection characterized by a painless, progressive enlargement of the lymph nodes, accompanied by progressive anemia and fever that may be continuous, alternating or remittent.

Two etiological possibilities have been advocated, that of a malignant growth, and that of an infection. In the early days the advocates of the malignant nature of Hodgkin's were many, and there are some that still contend that it is a malignant growth, but the investigations that have been conducted by both American and European investigators, and the clinical features of the disease, point strongly to its being an infectious process. The course of the disease is usually chronic, but may be acute and not infrequently there are symptoms analagous to those found in septicemia and cachexia, due to ordinary pyogenic organisms. The growth differs from malignant conditions affecting the lymph glands in that the capsule is not involved to any great extent and the surrounding structures are not involved, as in sarcoma. Moreover, it does not metastasize by cellular transplantation, as pointed out by Reed (4), but

*Read before East Tennessee Medical Association, September 30-October 1, 1920.

only by proliferation of pre-existing lymphoid tissue anywhere in the body.

That Hodgkin's disease was a form of tuberculosis was early advocated and this contention of Sternberg and others is still adhered to by quite a number of men. The failure to find the specific organism in any considerable percentage of cases practically precluded tuberculosis as any other than an associated or terminal secondary infection. In the older bacteriological studies the results were very contradictory, but recent studies have pointed to the possibility of a Gram positive diptheroid being the etiological factor. Negri and Mieremet (6) and Bunting and Yates (7) have described such an organism. Bunting and Yates have inoculated this organism into monkeys and the histological picture of Hodgkin's disease has resulted. Rose now (8) has confirmed this work in so far as it relates to finding the organisms, but many workers have failed to find the organism described by them. Bloomfield (9) and others have contended that many apparently normal glands contain a Gram positive diptheroid such as that described by Bunting and Yates. The whole subject of the etiology of Hodgkin's is in an unsettled state, but it appears that it is an infectious disease, that it is not contagious, that it bears no direct relation to tuberculosis and that the true etiological factor has not been proven.

During the early period there was much confusion as to the pathological picture shown by these growths, the general conception being that of a simple hyperplasia of some or all of the lymph glands and of the lymphoid tissue in the internal organs, with some of the cases reported as showing a picture of tuberculosis or the tubercular bacilli. It remained for Reed (4) in 1902 to largely clear up the subject and point out the true picture found in these glandular growths. Her findings are briefly as follows:

Macroscopically.—The glands tend to remain discrete even after they had reached enormous size, and this because the capsule is not infiltrated to any extent by the disease. The smaller glands are usually soft and elastic, while the larger glands may be hard or firm. There are never any large areas of

degeneration unless there is a secondary infection.

On section the older glands present an appearance not unlike carcinoma, presenting a semi-translucent, greyish surface, broken by intersecting, opaque, yellowish lines, but no cylinders of cells can be expressed.

The younger growth usually shows a uniform grey surface which is more opaque than normal and bulges on section. Hemorrhagic points may be present.

Microscopically.—In the smallest glands there is only a proliferation of the endothelial cells which cover the reticulum of the lymph sinuses and of the larger cells at the center of the nodes, which are cells of the same type. Mitotic figures are seen and there is frequent dilatation of the lymph sinuses and reticular spaces. Later these spaces are filled with a mass of lymph cells and endothelial cells. These newly formed cellular elements obliterate to a large extent the structure of the gland and an occasional follicle is all that remains to identify the section as that of a lymph gland. Lymphoid cells are numerous and occasionally large giant cells with many nuclei arranged peripherally are seen. Plasma cells are numerous and eosinophiles are frequently present in large numbers, though they may be almost absent.

Later in the disease the framework of the glands increases and bands of fibrous tissues are seen running out from the blood vessels and breaking up in the substance of the lobule. As the connective tissue increases the other elements are crowded out and fragmentation of the nuclei of the plasma cells and lymphocytes is seen. The process may continue until fibrous tissue is much more extensive than the cellular islands which these fibrous bands include.

The onset of Hodgkin's disease is insidious and in the ordinary type the patient is usually brought to the physician by an enlargement of the cervical glands. At this stage, there may not be any subjective symptoms or there may be a lowering of the bodily and mental powers with easy fatigue-ability, dyspnea, and palpitation on exertion, anorexia and beginning emaciation. Itching of the skin or peculiar eruptions are sometimes

seen. Other glands than the cervical glands may be the first to enlarge, and when the internal lymph glands are first involved the cases are very puzzling. It is these cases that usually present the syndrome of Pel and Epstein, and they will be discussed presently.

As has been mentioned before, the disease may run an acute or a chronic course. In the acute form the invasion of the lymphatic tissue, and changes in the spleen, thymus, and blood are surprisingly rapid and the case soon terminates fatally. There is usually fever, often very high, with prompt emaciation, cachexia and toxic symptoms. Elsner (10) says that in several of his acute cases there has been edema of the extremities, purpuric spots on the body, and depleting epistaxis. The duration of the acute type is usually from three weeks to three months.

In the chronic type, which occurs more frequently, the progress of the disease is slower and the patient, although showing enlarged glands and moderate anemia and emaciation, may be able to keep at work for a period of years. When the mediastinal glands are involved the pressure symptoms are persistent and increase in severity. The average duration of chronic cases is about three years, but may be longer. The so-called "latent period," when there is glandular enlargement without any marked constitutional symptoms, may continue for from one to three years. The "progressive period" is variable, but once the lesions and symptoms become prominent, there are generally no long periods of remission. The "terminal period" is continuous, with no let-up in the symptoms, which are cachexia, pallor, weakness, low blood count, dyspnoea, hemorrhage, albuminuria, purpuric skin changes, high and persistent fever, enlargement of the spleen and liver with ascites, edema of the extremities, nervous symptoms, thready pulse and hemic murmurs. The causes of ultimate death are toxemia, exhaustion, pressure, and intercurrent infection.

The blood picture is not pathognomonic, though a great deal of work has been done on the subject, notably by Bunting. Barker (11) has summarized the blood findings as follows:

Red Blood Corpuscles.—In the very early stages the number is unchanged. Later anemia develops and toward the end may be of a high grade. In cases where there is a large intrathoracic growth the red cells may be increased, due to the dyspnoea, reaching as high as six million.

Hemoglobin.—Corresponds to the red blood corpuscles or may be relatively more reduced.

Color Index.—When anemia develops it is less than one.

White Blood Corpuscles.—At first may be unchanged, later reaching from ten thousand to thirty thousand, or in a few cases, as high as fifty thousand.

Differential count shows a normal or slightly increased per cent of polynuclear neutrophils. Eosinophiles are decreased in the early stages, but are often enormously increased in the late stages. Lymphocytes are usually decreased. The mononuclear elements are often increased in the early stage. The increase in the transitional cells is especially noticeable, it not being infrequent to find from seven to ten per cent of these cells.

Blood Platelets.—These are markedly increased.

Turning to a consideration of cases of Hodgkin's disease with relapsing fever that have been reported, we find that in 1870 Marchison (12) reported a case of a girl six years of age who had paroxysms of fever, following an attack of scarlet fever and whooping cough, which continued for ten months and terminated fatally. The attacks recurred every four weeks and the fever reached its maximum on the seventh day. During the attacks the glands of the neck and axilla would become enlarged and tender. Between attacks her appetite was good. At autopsy the glands were found enlarged and firm. Gowers (13) in 1879, in his famous article in Reynolds' System of Medicine, described three types of fever associated with what he spoke of as pseudo-leukemia: Continuous, alternating and intermittent. He did not report any cases, but was probably familiar with Marchison's case.

In 1885 Pel (14) reported a case of intermittent fever in a man aged twenty-five years.

In June, 1884, he developed chills, fever, nausea, pain in the abdomen and malaise. He was first observed a few days later, at which time he was pale, the spleen enlarged, and there were physical signs of bronchitis. From this time the temperature showed the following course: Fever, eleven days; apyrexia, fifteen days; fever, thirty-two days; apyrexia, nine days; fever, and death from heart failure. During the last week there was jaundice. No blood counts were made, but Pel thought the white cells were increased. Spleen, liver and lymph glands were found to be enlarged at autopsy.

In 1887 Ebstein (15) reported a case which he designated as "chronic recurrent fever." The case, a boy, age nineteen, had diphtheria between the ages of eight and twelve, and as a very small child he had diarrhea, but otherwise his health had always been good. In June, 1886, his sickness started with malaise, headache, anorexia, and intermittent pain in the right side of his abdomen. The latter part of September his first rise of temperature was recorded. During two hundred and eleven days there were nine paroxysms of fever lasting on an average of thirteen or fourteen days. The periods of apyrexia were ten to eleven days, making the intervals between the highest temperatures twenty-four days. The maximum temperature was one hundred and four to a hundred and five and eight-tenths degrees F., while the minimum went as low as ninety-six or ninety-seven degrees. The temperature rose slowly but fell rather rapidly. At one time there was a plural exudate. Pulse and respiration varied with the temperature. The mind was at all times clear. During the attacks the patient lost his appetite; between attacks it was almost impossible to satisfy it. Fees and urine were normal. The spleen was enlarged and was larger during the febrile than during the afebrile periods, but the lymph glands were not enlarged. During the tenth paroxysm the temperature remained elevated twenty-two days, then fell, but immediately rose and the patient died five days later in a state of collapse. At autopsy the bronchial and mediastinal lymph glands were found enlarged

and hard, and there were nodules in the spleen, liver and kidneys.

During the same year Pel (14) reported two additional cases, one in a man of thirty-two years and the other in a man of forty-one years. The clinical course of the disease was about the same as Ebstein's case. In one of the cases blood counts were made showing a normal red cell count and a normal leukocyte count. The autopsy in each case showed enlargement of the mesenteric glands, and greyish yellow nodules in the spleen, liver, and kidneys. No signs of tuberculosis were found.

A number of cases have been reported since that time, but nothing has been added to the original description of the condition. The reader is referred to the article by Musser (16) and McNally (17) for a complete review of this phase of the subject.

The case which we have to report came under our observation in January, 1920, and presented the following history:

Patient: O. L. J., white, male, age 23.

Family history: Essentially negative.

Past history: Health has always been good. Patient had the usual diseases of childhood, but has had no serious illness until the present.

Present illness: On March 5, 1919, the patient fell twenty-five feet and landed on his feet. No fractures were sustained, but the patient was severely bruised and shaken up. Ten days later his fever began and has continued in paroxysms ever since, there having been twenty paroxysms.

The febrile period lasts from seven to twelve days, with an average duration of nine days. During the first three days the fever rises, going higher each succeeding afternoon until it reaches its maximum of one hundred and four degrees to one hundred and four and five-tenths degrees. It remains at this level for about three days, rising to one hundred and four in the afternoon and falling to one hundred and one degrees in the morning. Three days are usually required for the fever to fall to normal. The afebrile period lasts from ten to fifteen days, and usually goes as low as ninety-five to ninety-six degrees. During the interval the patient feels good and

his appetite is usually good; he gains strength and his color improves. During the paroxysm he loses his appetite, suffers from severe headache, from general malaise, and feels depressed. There is some nausea, but no vomiting or diarrhea. On two occasions there has been severe abdominal pain, and during the febrile period the left lumbar region always becomes tender.

Physical examination during both the febrile and afebrile period gave no evidence of any superficial or deep glandular enlargement. No retro-manubrial dullness. Lungs and heart are normal. Abdomen negative.

Laboratory findings, Jan. 20-21, during the height of a paroxysm:

Blood:

Total white cells	10,600
Total red cells	4,400,000

Differential:

Polynuclears	75 2-3 %
Mononuclears	2 1-3 %
L. lymphocytes	4 %
S. lymphocytes	9 %
Eosinophiles	3 %
Transitionals	6 %
Hemoglobin	74 %
Wassermann	Negative.
Malaria	Negative.

Urine:

Sp. Gr.	1012
Color	Dark Amber
Reaction	Acid.
Albumen	Negative.
Sugar	Negative.
Acetone	Trace.
Indican	Negative.
Blood	Negative.
Pus	Negative.
Caests	Negative.
Crystals	Negative.
Feces	Negative.

The findings on February 14, 1920, during an afebrile period, were as follows:

Blood:

Total white cells	10,800
Total red cells	4,240,000

Differential:

Polynuclears	74 1-3 %
Mononuclears	3 2-3 %
L. lymphocytes	4 %
S. lymphocytes	8 2-3 %
Eosinophiles	4 %
Transitionals	5 1-3 %
Hemoglobin	64 %
Urine	Negative.
Feces	Negative.

X-Ray Examinations:

Nasal and paranasal sinuses	Negative.
Sella turcica	Normal.
Mastoid cells	Negative.
Gastro-intestinal tract, following the ingestion of a barium meal	Negative.
Chest	No evidence of tuberculosis.
Kidneys and Bladder	Negative.

X-ray of the abdomen following intraperitoneal injection showed the liver and spleen normal in size.

Since these examinations were made the patient has been under observation at frequent intervals, and his condition remains about the same.

In arriving at a diagnosis in the ordinary type of Hodgkin's a differential diagnosis must be made:

(1) From leukemia. This is easily done by the blood picture.

(2) From tuberculosis of the lymph glands—by histological examination of the excised gland, tendency of glands to coalesce and break down, and absence of the Hodgkin's blood picture.

(3) From syphilis—by section and culture from lymph glands and by the Wassermann reaction.

In addition to these, the condition that first suggests itself in a case of recurrent fever of the Pel-Ebstein type is a septic condition, such as an abscess that implies itself periodically. In view of the negative physical findings, the negative x-ray findings, the negative urine and feces, and the blood picture, such a possibility can be eliminated in this case.

The possibility of there being a parasitic infection must also be considered, but the blood and feces both fail to give evidence of any such infection.

Clinically, the case presented is an example of the Pel-Ebstein type of Hodgkin's. An absolute diagnosis cannot be made until the autopsy findings are reached. However, the case has run such a typical course that we feel justified in reporting it as a probable case of the Pel-Ebstein type of Hodgkin's.

All treatment of cases of the acute type of Hodgkin's or of the Pel-Ebstein type is apparently without avail. In the chronic cases surgery, x-ray, arsenic and other drugs have

been used. Also vaccines and serum therapy, based on the assumption that the diphtheroid organisms of Bunting and Yates is the cause of Hodgkin's have been tried. Improvement has been noted, but the proof of complete cure is inconclusive, although Yates (18) believes that selected cases may offer some hope of a complete cure when treatment is instituted early.

Some authors have objected to classifying cases of the Pel-Ebstein type as Hodgkin's disease, pointing out that recurrent fever is found in sarcoma, tuberculosis and acute infection. It is included under Hodgkin's disease, however, by practically all of our medical writers, and the proof at hand would seem to indicate that it should come under this heading. It is certainly a distinct clinical entity and is of unusual interest because of its rarity and the spectacular features of its course.

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TUBERCULOUS SALPINGITIS.

By Percy H. Wood, M. D.,
Memphis.

In writing this paper on tuberculous salpingitis, I have tried to limit the subject to the pelvic viscera. This is quite impossible in certain parts as many cases of tuberculosis of the fallopian tubes are a part of the infection of the general peritoneum, but this latter type opens up such a large volume of diversified opinion as to diagnosis and treatment, that I thought it best to attempt to keep away as far as possible from the more generalized peritoneal cases.

Description.—The disease may occur either as a primary or as a secondary condition. Tuberculosis of the tubes is a more frequent disease than is generally supposed, and, according to Penrose, who has made a series of valuable observations on the subject, "is present in from eight to eighteen percent of all cases of inflammatory diseases of the uterine appendages." More recent authors give it a lower per cent.

Etiology.—The cause of tuberculous salpingitis is, of course, the tubercle bacillus. However, even with the aid of modern technique the demonstration of the bacillus in a given case of the disease is often difficult, or even impossible, either in the exudate or in the tissues, in cases in which the gross appearance of the lesion and the clinical course leave no doubt as to the nature of the disease. There are cases of chronic exudative salpingitis which lack the typical anatomic lesion of tuberculosis, but which because of their chronicity resemble tuberculosis very much.

Age.—No age is exempt. Osler states that the disease occurs most frequently between the 20th and 40th years, and this corresponds to the statistics of most writers on gynecology.

Heredity.—A family history of tuberculosis is obtained in a minority of the cases. However, this history should be gone into to prove or disprove existence of tubercular tendency. The presence of tuberculous lesion in the hus-

band is always suspicious and should suggest a possible connection between it and a tubal enlargement in the wife.

The clinical history of an existing salpingitis should be carefully investigated to ascertain if possible its origin, which can be traced in the vast majority of cases to a previous attack of sepsis or gonorrhea; but if the disease has developed so slowly that the patient is hardly aware of its presence, and she can give no definite information as to a possible cause, the tuberculous character of the tubal mass should be at least suspected. And finally the personal history of the patient is important, especially so if it shows a previous illness of a tubercular nature which has remained inactive and apparently cured for a number of years.

The important clinical factor is the differential diagnosis. Very commonly where a chronic irritative process has existed for some time, small vesicle-like nodules are formed which in a very superficial way resemble tubercles. These cysts are in structure identical with the stalked hydatids so commonly observed hanging from the fimbriated ends of the tubes. These are miliary cysts filled with a clear fluid. The walls of the cysts are composed of a very fine layer of connective tissue, and are lined with a flat endotheleum and covered by the same kind of cells. When these cysts are shrunken in alcohol, these cells are nearly cubiform. They owe their origin to the deposition upon the surface of the peritoneum of any flocculent precipitate, the formation of a pseudo-peritoneum which forms actual peritoneal cysts. Occasionally, particularly over the fundus of the uterus, these cysts may be as large as peas, or even larger. The larger ones readily collapse when punctured, but the smaller ones cannot be recognized. The lack of any reactive process about them, either vascular or indurative, and the semi-transparent appearance are sufficient to differentiate them from tubercles. On the other hand, a subperitoneal tuberculosis of so slight degree may exist that its nature is not suspected until the tube is sectioned. In such tubes the involved area may be detected on palpation when not discernible by inspection. The

induration type, in which the subperitoneal tissue is extensively hypoplastic, may resemble the gonorrheal salpingitis very closely. If caseated areas are discovered or if tubercles are seen about the border of the process the tuberculous nature of the process may be recognized. If there are none such, perhaps a section of the tissue will show fine granulations suggestive of tuberculosis but miliary areas of necrosis are also sometimes noted in gonorrheal tubes. In such borderland cases microscopical examinations may be necessary before the nature of the process can be determined. Equally confusing are the chronic gonorrheal tubes with small cysts of granulations on their surface. A localized thickening of the tubes may be caused by the tuberculosis presenting a veritable tuberculous salpingitis nodosa. It will be apparent from the foregoing that while generally speaking the tubal peritonitis is easily recognized at the operating table, frequently cases will be encountered which must be followed to the laboratory before the diagnosis can be made.

The tube is an especially favorable location for the growth of the tubercle bacillus, as well as for the gonococcus, on account of its convoluted form and its succulent lining membrane. Tuberculosis of the tubes, whether of the endosalpinx or the perisalpinx, is always bilateral. According to Graves it is doubtful if the infection ever takes place primarily in the tubes, the mode of infection being either ascending or descending or by the hematogenous route from some distant focus. Ascending infection from a tuberculosis of some part of the external genitals is exceedingly rare, and there is reasonable doubt if it ever occurs. In this respect the progress of the disease is in marked contrast to that of gonorrhea. Descending infection originates from a tuberculosis of the peritoneum or intestines above the tubes. The descending disease may affect either the perisalpinx or the endosalpinx, or both. When only the perisalpinx is involved, the surface of the tube merely takes part in a general tuberculous salpingitis. When the endosalpinx is involved, the disease becomes specialized.

The hematogenous mode of infection in the tube implies a metastatic growth of tubercle

bacilli which have come by the blood circulation from some distant focus, usually in the lungs. Most authors state that this route is unusual. When it does occur the original focus may become entirely healed, while the new growth of bacteria may continue to flourish. In this case the infection may appear to be primarily in the tubes, whereas it is, in reality, secondary. Except when the tubes take part in an acute general miliary tuberculosis, tuberculous salpingitis is always chronic. The tubal ostium tends to close early and the disease may progress to a tuberculous pyosalpinx. The contents of a tubercular pus-tube consists of a white, mushy, cheesy material if the infection is exclusively tuberculous, but a mixed infection in these tubes is common. If the latter takes place the pus-tube is then exactly like that originating from gonorrhea. In fact the two lesions may exist together. This similarity that exists between large tuberculous and gonorrhoeal pus-tubes may in some circumstances be of serious domestic or medicolegal importance. Another result is a formation of a hydrosalpinx, though this is not common. There is no doubt that genital tuberculosis may exist in fetal life. It is thought that the rare cases of so-called congenital hydrosalpinx are the outcome of a fetal tuberculous salpingitis.

Tuberculous salpingitis of long standing is nearly always associated with pelvic adhesions, which in some cases may be of extraordinary density and strength so that the adherent mass is absolutely inextricable. This is in contrast to gonorrhoeal adhesions of the pelvis, which are rarely inoperable.

So long as the tubercular infection is limited to the oviducts, it is impossible to recognize the nature of the lesion, and in cases where the disease co-exists with tuberculosis in distant or adjacent organs, the diagnosis is based solely upon inference, and our conclusions are therefore extremely doubtful. For while we may be justified in suspecting that a tubal mass is tubercular in origin when disease exist elsewhere, yet we cannot say with any degree of certainty that such is the case.

Symptoms.—The symptoms of tuberculous salpingitis unassociated with a tuberculous peritonitis are the same as those of a chronic

gonorrhoeal salpingitis. The condition found by pelvic examination is also exactly the same, so that, unless there is an intact hymen, it is as almost impossible to make a definite diagnosis of tuberculous salpingitis. The presence of a tubercular focus elsewhere in the body may serve as a guide to the diagnosis, but it is as often misleading. If genital tuberculosis is associated with a general tuberculous peritonitis the diagnosis may be very obvious. The progress of the tuberculous salpingitis is as a rule very slow and insidious. If it comes on early in life it may cause a local or general hypoplasia or endevlopement of the individual. Amenorrhea is commonly a result of the disease and exists in many cases, while sterility is almost inevitable. In a large percent of the cases the diagnosis of tuberculosis is made only after the abdomen has been opened, the operation having been undertaken for what was supposed to be one of the ordinary pelvic inflammations.

Treatment.—The question of operative interference depends upon the general condition of the patient. Complete hysterectomy with the removal of the uterine appendages is indicated in all cases, as tuberculosis of the tubes and ovaries seldom occurs without the uterus being also involved, and the results of a radical operation are very favorable to a permanent cure in cases where the disease has not extensively involved other organs. Tuberculous peritonitis is never a contraindication for this radical operation unless the condition is well advanced and the patient's general condition is extremely bad, as abdominal section has a curative influence in many cases upon general tuberculous peritonitis. The operative treatment is practically the same as that for chronic pelvic inflammation from gonorrhoea, except in the one important point that the operation should tend more to the radical complete hysterectomy even in young women. Conservative procedures here have not given the best results, as there is always a tendency to recurrence. In most cases drainage is contraindicated, due to the fact that the latter is very likely to leave permanent fistulae. The medical and hygienic treatment should be given great attention, for a great deal depends on general re-

sistence of the patient following the operation. Tuberculin was freely used for a time in these cases, but its use has become rare due to the lack of results in other forms of the disease.

Prognosis.—The prognosis of the disease is always grave. If the affection is secondary to tuberculosis in another part of the body, it adds to the previously existing dangers. Both primary and secondary tubal infections have a strong tendency to spread to the peritoneum, the uterus, ovaries or to cause general tuberculosis. Sometimes tubal suppuration may develop and the patient die of rapid sepsis, or the abscesses may rupture suddenly, causing a fatal peritonitis. A spontaneous cure may occur in very rare instances by the lesion undergoing calcareous or fibroid changes.

In conclusion, it will be well for all of us to keep in mind the following points in getting the history of any patient and to remember that there are certain conditions that point to a pelvic tuberculosis: First, symptoms of a chronic pelvic inflammation in a girl or young woman who has had no evidence of uterine infection, and on pelvic examination the hymen being found intact; second, gradual onset without previous uterine disease, and persistent progress without the periods of marked improvement, usually present in ordinary pelvic inflammations; third, emaciation, gradual and persistent, without the corresponding severity of the inflammatory trouble; fourth, evidences of a history of a phthisical tendency with the physical and anatomical characteristics of that disease; finally, if the history of a tuberculous lesion in some other part of the body can be obtained, the diagnosis should be at least suspected.

WHEN SHOULD A TOTAL HYSTERECTOMY BE PERFORMED IN PREFERENCE TO A SUB-TOTAL?

By William T. Black, M. D., F. A. C. S.,
Memphis.

Splendid articles have been presented recently by very able gynecologists, advocating

total hysterectomies for all fibroid cases, in preference to sub-total. One of the most recent papers was presented in a very able manner by Polak, before the last meeting of the A. M. A. He claims that his mortality in total hysterectomies has only been five-tenths per cent higher than in sub-total. He states that his mortality has only been two per cent.

Most of the authorities upon this subject take a contrary view to the one expressed above, and say that the sub-total hysterectomy is the operation of choice in cases of myomata of the uterus. I do not believe that the mortality will be much higher in selected cases suitable for a total hysterectomy over the sub-total, but we will have a larger number of these fibroid cases present themselves for an operation with a severe infection of the tumor, with badly infected tubes and ovaries, with chronic inflammatory changes in the parametric tissues producing a board-like pelvic diaphragm, that will render a total hysterectomy a very dangerous procedure and will undoubtedly increase our mortality to a very high per cent. I contend that if gynecological teachers should teach and advocate pan-hysterectomies in all cases of fibroids, and if these teachings should be followed out by all operators in the general hospitals, that the mortality would be decidedly increased; therefore, I believe that the teaching should remain as before, that is, a supra-vaginal hysterectomy is the operation of choice in myomata of the uterus. On the other hand, no doubt, a supra-vaginal is often performed where a pan-hysterectomy should be the operation of choice.

In all cases suspected of malignancy, a pan-hysterectomy should invariably be performed. In badly lacerated and ulcerated cervixes, or where the cervix is badly infected, a total should be the rule. The exception to this rule would be in cases where we have the latter conditions present, with marked fixation of the uterus and the structures surrounding and attached to the junction of the body and cervix. Here I have found a supra-vaginal, with amputation of the cervix, very suitable. The principle reasons given advocating total hysterectomy are the danger of the remaining cervix becoming malignant, also that the pa-

tient often continues to complain of a leukorrheal discharge, which, in the judgment of the patient, is of more importance than the tumor itself. As stated above I would advocate, where possible in cases of infected cervixes, total hysterectomy. Some operators dissect out as much as possible of the cervical endometrium in doing a sub-total, but it is almost impossible to dissect out all of this membrane so as to prevent leukorrhea, and if dissected out, they believe that it reduces the chances of a carcinomatous development, when as a matter of fact this is so only to a very limited extent.

It has been proven by Peterson and others that two-thirds of cancers of the cervix are true epitheliomas developed from the squamous type of epithelial cell, lining the vaginal portion of the cervix. Bland-Sutton goes so far as to say that 98 per cent of cervical cancers are of the squamous type. Therefore, any operator doing either a total or a supra-vaginal hysterectomy, with amputation of the cervix, will reduce the chances of subsequent malignant occurrence.

The following statistics give more information bearing upon the mortality of hysterectomies in myomata and the occurrence of malignancy in myomata of the uterus.

Deaver reports 750 operations for fibroids with a 2 per cent mortality. Tracy reports 100 cases with a 2 per cent mortality. Bland-Sutton in 1906 reported 348 hysterectomies for fibroids, found in various English hospitals, with a mortality of 11 per cent. He, however, reports 130 successful cases before he had a death. Dorsett, in 1911, reports 140 operations, with 6 per cent mortality. Guthrie, in 1917, reports 373 cases with a mortality of 1.37 per cent. Darnall, in 1915, reports 161 cases with a 2 per cent mortality. At St. Bartholomew's Hospital, 547 cases with a 3.7 per cent mortality. LeRoy-Bruin's reports 262 fibroids with 1.53 per cent mortality.

The above mortality will average about 3.33 per cent. Sutton reports that 10 per cent of cases of women past 50 with fibroids are malignant. Evans found 1.3 per cent malignancy in 4,000 specimens. Geist found that in 250 cases of myomata 4.8 per cent were malignant. Noble,

in summarizing 4,480 cases of myomata, found malignancy in the body in 1.54 per cent, and in the cervix in 1.29 per cent, equaling 2.8 per cent, while 337 cases by the same writer gave 4 per cent malignant. Kelly and Cullen report that in 1,700 myomata malignancy was present as follows: 1.3 per cent in the cervix, 1.7 per cent in the body, 1.2 per cent sarcoma, equaling 4.2 per cent. LeRoy-Bruin, for nine years at the Woman's Hospital, found cancer out of 1,760 cases in less than .4 of 1 per cent. Tracy reports 110 fibroids with 12 per cent malignant. The same author in 1908 summarized 3,561 cases, 4 per cent malignant. The above figures will give about 3.80 per cent malignancies occurring in fibroids.

In comparing the frequency of occurrence of cancers in myomatous uteri of 3.80 per cent, we find a slightly higher per cent than in operations for fibroids, which, as previously given, was 3.33 per cent. Taking these figures at their face value, and of the operative mortality as representing the mortality of total hysterectomies, then the evidence would be so conclusive as to make total hysterectomies imperative in all cases. No doubt the majority of the foregoing were supra-vaginal operations. When you study the report of 4,000 cases, with 1.3 of malignancy, the report of 1,760 cases, with less than .4 or 1 per cent, and compare with the report of 110 cases with 12 per cent, then you must add and divide as above to get the estimate of the frequency of malignancy. Graves formerly stated that sarcoma was present in from 4 per cent to 6 per cent of cases, but he finds now that the previous report was an error in diagnosis, and he now finds it only to be 1 per cent.

It has been stated by some that cancer of the cervix occurs in 4 per cent of cases when the cervix is left. Cancers often occur later in life, and Koblack says 50 per cent of cancers of the body occur between 50 and 60 years of age. Taking into consideration the age of occurrence of cancer in the myomatous uterus, I believe that it is a good policy to pursue to perform a total hysterectomy as the operation of choice in all women 40 years of age or past.

This paper does not deal with the subject of hysterectomies only in fibroid tumors and cancer occurrence, but I wish to include in my report the last 176 cases, of which I have accurate histories, also chronic infections of the uterus, tubes and ovaries, as well as other pathological entities where I thought hysterectomy indicated. The report is as follows: Hysterectomies, 176; total hysterectomies 33, with 2 deaths, making a 6.2 per cent mortality. Of these 72 per cent, or 128 cases, were sub-total, with 3 deaths, showing a mortality of 2.3 per cent. The remaining 15 cases, or 9.4 per cent, were vaginal without a mortality. The 176 cases gave a total mortality of 2.8 per cent. Of the above cases, 54 were for myomata, 12 for cancer and 4 were for tubercular infection. The remaining operations were performed for various reasons; for example, proeidentia, badly infected tubes, ovaries and uterus, with marked adhesions, for cases of chronic metritis or sub-involuted uterus. Both tubes were removed in 112 cases, or about 64 per cent. The left tube was removed 24 times, or in 14 per cent of cases. The right tube was removed 13 times, or in 7 per cent of cases. Both ovaries were removed in 78 cases, or 44 per cent. In the remaining 98 cases the left ovary was removed 47 times, or 47.9 per cent, the right ovary 17 times, or 17.3 per cent. Of the five who died, case No. 27 was a supra-vaginal hysterectomy, who was doing well until the fifth day, when she sat up in bed and dropped dead (probably embolus). Case No. 574 (pan-hysterectomy) was a multiple fibroid, with infection of the ovaries and a double pyosalpinx. Death was due to peritonitis. Case No. 1377 (supra-vaginal) was a very obese woman, who had been operated upon three times previously. The uterus was wedged in the pelvis and there were very extensive adhesions of all other abdominal viscera, making a long, tedious operation. This patient had suppression of the urine and died in about five days. Case No. 1446 (supra-vaginal) had a very large fibroid, ovaries infected and double pus tubes. Died of peritonitis. Case No. 1438 (pan-hysterectomy) a negro woman, carcinoma far advanced. This case should not

have been operated upon, but should have been treated with the Percy cautery, or preferably radium and x-ray. The ease of embolus was, of course, something over which we have little control. Cases 574 and 1446, although both had fibroids, should not be put down as fibroid deaths, but deaths due to peritonitis from tube infection. Case 1377 was evidently a uremie death.

If one were operating with only a low mortality record in view, he could, by the proper selection of cases, almost obtain his ambition, but we are often compelled to run operative risks in the interest of the patient; therefore there will never be a no-mortality record in any large number of hysterectomies.

I wish to submit the following report of hysterectomies performed at the Baptist Memorial Hospital, Memphis, Tenn., from October, 1919, to October, 1920. There were, out of 107 hysterectomies, 13 totals, or 12.1 per cent. There were 2 deaths in these 13, making a mortality of 15.4 per cent. There were 7, or 6.5 per cent, vaginal hysterectomies, with a mortality of 14.3 per cent. There were 87 or 81.3 per cent sub-total hysterectomies, with a mortality of 2.2 per cent (3 deaths). The above report of 107 cases give a mortality of 4.7 per cent.

At the Memphis General Hospital there were during the past year 108 hysterectomies, with 10 deaths, 17 of these were total hysterectomies, with a mortality of 17.6 per cent. There were 90 sub-totals, with a mortality of 7.7 per cent. One vaginal, with no mortality. There were 52 fibroids out of the 108 cases, with a mortality of 4.61 per cent. The total mortality of the 108 cases was 9.2 per cent.

At St. Joseph's Hospital there were 94 hysterectomies from July 30th, 19, to July 30, 1920. There were 30 totals, with a mortality of 6.66 per cent. There were 60 supra-vaginals, 6.6 per cent mortality. There were 7 deaths out of the 94 cases. There were 4 vaginals without a death. The total mortality of the series was 7.4 per cent. The general average mortality for the three above named hospitals was 7.1 per cent.

Gartley-Ramsey Hospital reported 46 hysterectomies during the past year with a mortality of 4.34 per cent. The general mortality for

these four hospitals was 6.4 per cent. The report from the latter hospital does not tell what kind of hysterectomies were performed, but in the three former hospitals I find there was a mortality in total hysterectomies of 14.58 per cent, in vaginal hysterectomies 4.7 per cent, and in supra-vaginals 5.63 per cent.

We are compelled from the above figures to justify my contention in the beginning of this paper, that is, that a sub-total should continue to be the operation of choice in fibroids of the uterus. While these figures are not definite in regard to the occurrence of cancer in the remaining cervix after a subtotal hysterectomy, nevertheless I think this is sufficient proof to justify leaving the cervix in a large per cent of cases in fibroid tumors of the uterus.

In conclusion, I wish to state that sub-total is the operation of choice in fibroids of the uterus. The total hysterectomy should be performed in all cases suspicious of malignancy, and in badly ulcerated or infected cervixes. A total hysterectomy is the operation of choice in a woman approaching or past the menopause with fibroids of the uterus. Where necessary to remove the uterus with a bad cervix, in those who have a board-like pelvic diaphragm, a subtotal with amputation of the cervix is preferable to a total.

Vaginal hysterectomy in selected cases gives a lower mortality and is preferable to any other type of hysterectomy.

THE PASSING OF THE COUNTRY DOCTOR.

By I. A. McSwain, M. D.,

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Perhaps about the time of Hippocrates, or earlier, there appeared on the scene of human activities a specimen of the race who had about him a distinguished air, a pronounced odor, clothed in unique apparel, and who carried in his hand a bag, the contents of which were shrouded in mystery and into which the eyes of

the vulgar were not permitted to look. He wore a long beard, his hair was long, his gait was steady, his steps far-reaching, his eyes upon the ground as in deep meditation, as he pursued his way over stones and uneven ground, through the wilderness, along the babbling brooks, over uncultivated fields, over mountains, across streams, wading or walking on an unsteady log that had made a temporary bridge, and on and on, until he reached a log cabin, into which he entered to find, stranded upon a bed of straw, a fellow mortal that had fallen victim to disease or had been wounded by some wild animal which he was pursuing that he and his might have wherewith to allay the pangs of hunger which gnawed at their very vitals; but now, alas! found himself helpless, and suffering untold agony, while the woman and little ones hovered over the little heap of sticks and brush in the middle of the tent or cabin, destitute, alarmed at the calamity which had overtaken the food provider, whose groans filled the air with no hope of relief until the strange figure with bag in hand approached, and who began at once with his rude equipment to bestow some measures of relief.

Out of his mysterious bag he brought forth divers and sundry roots and herbs and barks, and seeds, and dried flowers, some of which he placed in the pot which hung in a rack over the fire, pouring in water from the adjacent spring and piling on more wood until the pot boiled and filled the air with mixed odors, and then out of rusty eup or gourd he poured down the throat of the sufferer the bitter decoction, *ad libitum*.

But the man was bleeding from his wounds which must be checked ere the vital fluid now soaking the bed of straw and leaves should be drained away in sufficient quantity to put an end to the suffering man, and something must be done to save the flickering life. The stranger thrust an iron into the fire and let it remain until it was red hot, and without hesitation applied it direct into the wound, while the patient squirmed and yelled with pain. To make sure that no more blood escaped, the inner bark of the red oak which overhung the cabin was applied and over this some rags tied tight with strings made of bark. Then more

of the bitter dejection was given and the patient was told to keep quiet.

The strange figure vanished. The hope of fee or reward had not been a factor in the proceedings. Some occult influence had made its impress on the mind and heart of this peregrinating but thoughtful character to go to the relief of his fellows in times of peril, and as best he could to administer to their distresses, and in this arena and under those environments in the dim and distant past—even in the prehistoric ages of men—the DOCTOR WAS BORN. Along with his advent and later, and even now in the blaze of what we are pleased to denominate “the high tide of civilization,” there accompanied him certain mysticisms, incantations, exorcisms, and—shall we say it?—deceptions, more modernly called by the curious name of *camouflage*, a word invented in the late holocaust, meaning, we suppose, “to cover up.”

The being to which we have alluded as “Doctor” was essentially of the country. He was not the product of the city, did not make his advent surrounded with the wealth and glamour of the rich and great, whence kings and princes, dukes and court ladies hold high carnival in luxuriant idleness and lasciviousness, extravagances and debauchery; nay, but he came from the forests and mountains, the fields and meads, where were the songs of birds and the rippling music of the rills; close down to nature, where he lived under the starry heavens and inhaled the fragrance of nature’s flowers, and the fresh upturned sod of the plowman. It was under similar environment that the ancient seers and prophets were born and lived and gathered inspiration from nature’s own domain. It was from such surroundings that John Baptist, than whom there has never been a greater man, came clothed in skins of wild animals, feasting on wild honey and the fruits of uncultivated trees, and called on all mankind to “halt” in their downward way, face about and get ready to receive the “Man of Galilee,” whose very shoes were too sacred and holy for John to stoop and unloose. And yet this Son of Man, Son of God, himself, was born among the cattle and in a stable, for there was no room for Him in the Inn. Too fastidious were the rich and great of earth to admit with-

in their magnificent halls, Him of whom it is known was and is the minister plenipotentiary of heaven and earth. And so it has ever been—the men that move earth and sky and sea to discover what is best for man, have been of lowly birth and haled from obscurity—thus proving the ancient maxim as fact, that the weak things of the world confound the mighty.

We reaffirm that the science of medicine was essentially based upon and originated in the espousal of an ideal which in some way filtered into the mind and soul of those who possessed a longing to know how to afford relief and cure for humanity’s ills, and who studied nature’s way by observation of animals and birds and savages, and from those small beginnings, added little by little to the store of human knowledge, by experiment and by the study of effects produced on the human mechanism by actual trial—sometimes with good, many times with evil results—but ever pressing forward with faith in their work. And who knows but that with some sort of inspiration, influenced by an unseen but guiding hand, they have accomplished so much of knowledge that in this our day and time the darkness seems to be breaking away and the light of science foretells the coming dawn when disease shall be banished from the earth?

If you ask who contributed most of all to the furtherance of medical knowledge in all its departments, we would be bound in truth to say it was the *countryman*, who saw all the various phenomena of disease, and who felt his way through the darkness toward remedies and appliances to stay the progress of disease and forestall the approach of untimely dissolution. After scores and scores of years, scientists came to the rescue of those who had seen the manifestations of disease and had tried by outward signs and symptoms to diagnose its character and had made large advances along this line, but were handicapped as to the real causes until the laboratory unveiled the hidden source of “the pestilence that walked in darkness, and the scourge that wasted at noon day.”

But while due honors are to be rendered to the pathologist for his important discoveries, it was the general practitioner—the Country Doctor—if you please, that blazed the trail and pointed the way of discovery.

Shall we before relating the "Passing of the Country Doctor" pay a decent tribute to his memory? We assume, Mr. President, that you and this distinguished body of physicians and surgeons, will not deny the little space of time we will take in the brief allusion.

The man of whom we speak was a man of parts. A century ago he was not essentially an educated medical man in the sense of schools and universities. He "took up" the practice of medicine as a man takes to any occupation, trusting to his genius and to good fortune. He read a few medical books, went out and dug up some roots and herbs, bought at the store a few common remedies, learned the art of compounding and of the making of mixtures and pills, and proceeded without let or hindrance of meddlesome lawmakers to ply his vocation.

Later he went to college, bought more books, looked over instruments in show windows and saw many of which he could not divine the use but purchased a few of the more uncomplicated ones, laid in a better supply of drugs, chemicals, pill boxes, empty bottles, a new pair of saddlebags, and went home. He was the idol of the community. He had been to college. Calls came from near and far. He went day and night, through storm and sunshine. He had a fine horse—often two—and with his saddlebags laden with drugs, he went forth conquering and to conquer. His dress was ordinary. He had high-top boots, corduroy or jeans pants, home-made shirt, with collar attached, a long frock coat, a rubber raincoat tied onto the back of his saddle, a soft hat or cap, a cob pipe and some homespun tobacco. He rode fast. He went through fields if nearer, along bypaths, swam creeks, pulled through mud, faced snow and sleet, rain, wind, heat and cold. But he "arrived." His presence inspired hope. His words were words of wisdom. His remedies were chosen to meet indications. His bills were never paid.

He made haste to get to the bedside of the parturient woman in her agonies, held on to her hands, supported one knee, made frequent examinations to see that all was well, and sometimes with—often without—his timely aid but any way in most all cases, the child made its way onto the stage of this human drama by

the forces which nature had so wisely provided, and the woman emerged from the apparent jaws of death and the tortures of hades.

Her smiles of gratitude to her attendant physician largely paid him for his heroic (?) effort in her behalf.

Thus the Doctor, present and helpful at the debut of the little stranger, a few months afterward was summoned again to see the prodigy writhing in the throes of approaching dissolution, from having been fed by the indulgent mother or aunts on some chicken dressing, peanut butter, mashed potatoes, fat bacon, cabbage, *et id omne genus*.

Or perchance, adolescence, youth and manhood may have been given to the once new born, and and on until the three-score and ten had come and gone, the Doctor had been an observer all the while, and at last, was witness to the attenuated frame, the flickering pulse, the stertorous breathing, the pallid countenance—the end—the gateway to the land Elysian, whose portals we call death.

Thus was the Doctor the beginning and the ending, the first and the last, as deponent in life's fitful fever.

It is with a degree of sadness that we note that this man, this all-round country doctor whom we loved so well, and who served so well his generation, is soon to be a memory and shall have passed as those things which have been to return no more.

This institution—the Country Doctor—has had for some years a disposition to change his domicile from isolation to the centers of population, and has longed to associate with his fellows in closer union and fraternal regard, but he could not quite see his way to this goal; for his clientele objected to his leaving; his wife wanted to keep the cow and chickens and have a garden; to make lye soap, put up canned fruit, lay in pork for a year's supply: was afraid for the boys to go to town lest they might learn habits not conducive to good morals; hated to leave her church: and for various reasons, financial and otherwise, he was content to remain "far from the maddening crowd."

But quite a number of things have developed within the past two decades which made it possible, if not imperative, for him to move to

town. It seemed to be to his interest and to that of his family.

The saloons went away with their hordes of vices, removing the moral objection to city life. The telephone established immediate communication to distant parts, so that "calls" could be made without "going after the Doctor." The girls wanted "society" (they got it sometimes to the discomfiture of the hearthstone). The small fees usual to country practice were mentally compared to the large bills made out by the city physician for like services. The vast increased outlay which must be made by a medical student before he could practice at all, and the long term of college life and then as a hospital interne, made it almost middle age before a man could enter on the active duties of his profession, and this contributed to his settlement in town or city as the only probable way of compensation for the time and money spent in preparation.

While still halting between the two opinions as between town and country as a location, came Henry Ford and a strange looking wagon, roaring and smoking and smelling of gasoline, adown the road, up hill and down, over bridges and highways at a terrible rate of sped. The dye was cast. Space obliterated, communication immediate, why stay in the country? The homestead was sold for a song, and a house rented in town, an office also rented; old furniture sold at auction; new beds, new chairs, new tables, even a piano or, what is worse, a Victrola bought, all on the installment plan.

There are disadvantages; debts, over due notes in bank; cost of high living, fashions, shows, parties society, all that and all that, but he is no longer a country doctor in the sense that he lives and has his citizenship in the country. But ordinarily he is not averse to accepting calls away out in the country, to meet which he either goes in debt for an automobile or hires "a Ford" to carry him, for he has no horse, no buggy—and if he had, that mode of transportation is too slow for these days. And just head, the auto will prove to be a back number, too, for the doctor will step aboard an airplane and be at the place almost before he has the call.

The Country Doctor is now in transit, and

passing from us. The general practitioner is soon to follow, and specialism in all lines of practice will be the vogue. But a monument should be erected to his memory, describing his noble deeds of charity and pure beneficence, his immolation of self for the good of others, his extensive knowledge of disease and treatment, his profound sympathy with suffering humanity and his untiring zeal in the discovery of more satisfactory methods of treating disease and preserving the public health.

REPORT OF TWENTY CASES OF FOREIGN BODY IN THE TRACHEA AND ESOPHAGUS.*

By Hilliard Wood, M. D., F. A. C. S.,
Nashville.

This is not a paper, but a report of twenty cases of foreign body in the air tract and esophagus. We have here a tabulated report showing the character of the foreign body, the length of time it remained in the air tract or esophagus, the symptoms, the method of diagnosis, the manner of removal and the result.

The characters of the foreign bodies were as follows: Two beans; one button; five coins; one piece of corn stalk; three grains of corn; one jack; one orange pulp; one portion of oyster; two peanuts; two pins; and one tooth root, making a total of twenty cases.

The ages of the patients varied from nine months to fifty years, the average age being nine years. This average, however, is somewhat misleading, as two patients past middle life raise the average of quite a number of children. As a matter of fact, fourteen of the twenty cases—i. e., seventy per cent—were below the age of six years. From this it will be seen that these cases of foreign body occur especially in children.

As regards sex, three of the twenty cases were females; seventeen were males. As to color, nineteen were white; one was colored.

The history of those cases in which the for-

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foreign body entered the trachea or bronchus is usually very definite, and taken in connection with the symptoms which usually immediately follow, is often diagnostic. In such cases the usual history is that immediately after the foreign body disappears through the throat, symptoms of respiratory distress develop. These symptoms are difficult breathing, wheezing, asthmatic breathing, cough, suffocation, and, sometimes, vomiting. These symptoms usually persist so long as the foreign body remains movable in the air tract, but in case it becomes fixed, as, for instance, a pin sticking in the wall of the air tract, or a bean being wedged in the bronchus, the spasmodic symptoms usually subside in part or entirely. In the case of a foreign body plugging the right or left bronchus, respiration in the obstructed lung is abolished. In one such case, in which a bean plugged the left bronchus, there were no respiratory sounds over the left side of the chest, but all respiratory sounds on the right side were exaggerated.

In those cases in which the foreign body enters the esophagus and lodges there, there is usually an absence of respiratory symptoms, but more or less difficulty in swallowing, depending on the degree of obstruction. When the obstruction is only partial, liquids may be swallowed, but no solids. If the obstruction is total, of course neither liquids nor solids can be swallowed. In one case difficult respiration, and in the other case difficult deglutition, will give a fairly correct idea as to whether the foreign body is in the air tract or in the esophagus.

The length of time the foreign body had been in the air tract or esophagus when removed varied from one hour to three months, the average time in the twenty cases being ten and one-half days. In ten, or fifty per cent of the cases, however, the foreign body was removed within the first forty-eight hours following its introduction. In one case, in which a tooth root remained in the bronchus for three months, the patient developed general symptoms of incipient pulmonary tuberculosis, with cough, expectoration, loss of weight and increased temperature. The re-

moval of the foreign body was followed by complete cure.

In these cases the diagnosis was made by the history, the symptoms, the physical examination, and, where possible, by the use of the x-ray and fluoroscope. In the case of bodies capable of producing a shadow, such as metal bodies, the x-ray was used, and was usually diagnostic. Where the x-ray can be used, it will not only diagnose the presence of the foreign body, but will also give its location and its position, which information is of material assistance in its removal. In eleven of the twenty cases, the x-ray was used successfully in the location of the foreign body. In the remaining nine cases the x-ray could not be used on account of the nature of the foreign body, which would not produce a shadow. However, in those cases in which the x-ray could not be used, a diagnosis could usually be made correctly by the history and the symptoms. In fact, the history and the symptoms in these cases are almost pathognomonic.

The anesthetic used in the operations varied, chloroform being used in four cases; chloroform-ether in two; ether in eleven; and cocaine anesthesia in three. In every case some anesthetic was used, and more and more we have come to adopt ether as the best.

The method of removal of the foreign body also varied in the above cases. From the esophagus the foreign bodies were removed either by the aid of the esophagoscope, or, in the case of children, by the aid of the Jackson small laryngeal speculum. This speculum, which is about six inches long, can be used to expose the upper end of the esophagus, when the foreign body can frequently be seen and grasped with long, slender alligator forceps. If the foreign body is low down in the esophagus, of course the ordinary esophageal tube is used.

In the case of a foreign body in the trachea or bronchi, the bronchroscope was used in almost every instance. In some cases the bronchroscope was introduced through the mouth and larynx, but in ten cases, tracheotomy, usually a low tracheotomy, was done. When a tracheotomy is done, the foreign body may, of course, be coughed into the wound,

Report of Cases of Foreign Bodies in the Trachea and Esophagus [20 Cases]

By HILLIARD WOOD, M.D., F.A.C.S., Nashville, Tenn.

Case No.	Age	Sex	Color	Nature of Foreign Body	HISTORY	Length of time foreign body had been in wind pipe or esophagus	SYMPTOMS	DIAGNOSED BY	DIAGNOSIS	ANESTHETIC	METHOD OF REMOVAL	Complications	AFTER-TREATMENT	END RESULT	
1	1 1/6	F	W	Peanut	Was eating peanuts. Developed symptoms of foreign body in windpipe.	24 hours	Choking and difficult breathing	History and symptoms	Probably some portion of peanut in air tract	Chloroform	High bronchoscopy failed. Low tracheotomy. Foreign body coughed into wound and removed	Tracheal wound infected	Wound closed, five layers sutures infected. Sutures removed; pus evacuated. Dressing twice daily	Foreign body removed. Wound healed nicely	1
2	9	M	W	Piece corn stalk	Sucked piece of corn stalk into windpipe.	48 hours	Choking, coughing and wheezing	History and symptoms	Foreign body in right bronchus	Ether	High bronchoscopy failed. Low tracheotomy and bronchoscopy. Foreign body removed with forceps	None	Wound closed, casted	Foreign body removed	2
3	17	M	W	Pin	Swallowed pin	24 hours		History, x-ray and fluoroscope	Pin in esophagus, opposite fifth cervical vertebrae	Cocaine, Ether, Chloroform	High bronchoscopy and esophagoscopy failed. Pin passed into stomach	None	Advised eat rough food	Pin expelled naturally 10 a. m., October 9	3
4	5	M	W	Grain of corn	Sucked grain of corn into windpipe.	3 to 4 hours	Cough, rough breathing and accumulation of mucus	History and symptoms	Grain corn in windpipe	Ether	High bronchoscopy failed. Low tracheotomy; removed grain of corn	None	Wound not closed. Covered loosely with fluffed gauze	Foreign body removed	4
5	33	F	W	Tooth	While having teeth extracted under general anesthesia, one tooth dropped into throat and was supposed to go into trachea	6 weeks	Cough, expectoration, wheezing, soreness over right bronchus; loss of weight	History and symptoms; x-ray negative	Probably tooth, or portion of tooth, in right bronchus	Ether	High bronchoscopy failed. Low tracheotomy and low bronchoscopy. Removed tooth	None	Tracheal opening not closed. Covered with fluffed gauze	Foreign body removed	5
6	50	M	C	Orange pulp	Eating orange; supposed to have drawn some into windpipe	3 weeks	Choking, cough, hoarseness	History and symptoms	Probably portion orange in windpipe	Local	High bronchoscopy. Failed to locate foreign body	None	Advised await future developments	No foreign body found	6
7	6	M	W	Pin	Swallowed pin	3 months	Cough; increased temperature	History, symptoms and x-ray	Pin in right lung	Chloroform, Ether	High bronchoscopy. Low tracheotomy and low bronchoscopy; failed to locate pin	None	Tracheal wound left open. Protected by loose gauze	Foreign body not located	7
8	2	F	W	Coin	Swallowed nickel	3 days	Inability to swallow solid foods	History, symptoms, fluoroscope	Nickel at the Introlus-esophagi, flat surface antero-posteriorly	Chloroform	High bronchoscopy. Jackson infantile laryngeal speculum. Removed nickel with alligator forceps	None		Foreign body removed	8
9	9	M	W	Jack	Had iron jack in mouth, and sucked it down throat	24 hours	Inability to swallow liquids or solids	History, symptoms, x-ray and fluoroscope	Jack at junction of pharynx and esophagus	Chloroform	Laryngoscopy and esophagoscopy. No foreign body found	None	Regular diet. Advised screening stools	Foreign body expelled naturally 6 p. m., August 11	9
10	1 1/2	M	W	Grain of corn	While eating corn in ear, is supposed to have gotten grain corn in windpipe	1 to 4 hours	Coughing; choking; wheezing, suffocation	History and symptoms	Probably grain of corn in windpipe	Chloroform	High bronchoscopy. Low tracheotomy. No foreign body found	None	Tracheal wounds left open. Covered with fluffed gauze	Foreign body not found. Relieved coughed up en route to hospital	10
11	3	M	W	Coin	Swallowed nickel	3 to 4 hours	Immediate vomiting	History, symptoms and x-ray	Nickel at junction of pharynx and esophagus	Ether	High bronchoscopy. Jackson small speculum. Nickel removed	None		Foreign body removed	11
12	1	M	W	Button	Playing about wood box, developed symptoms of foreign body in windpipe	10 days	Choking, followed by inability to swallow either solids or liquids, wheezing respiration	History, symptoms and x-ray	Button in esophagus, at level of supra-sternal notch	Ether	High bronchoscopy failed to locate foreign body	Pneumonia	Wound not sutured. Covered with fluffed gauze	Death within thirty-six hours; pneumonia	12
13	2	M	W	Bean	Playing on floor among beans; supposed to have swallowed bean	24 hours	Suffocation, coughing, wheezing, choking	History and symptoms	Probably bean in wind pipe	Ether	High tracheotomy. Bean coughed into wound and removed	None	Wound not sutured. Covered with fluffed gauze	Foreign body removed	13
14	3 1/2	M	W	Peanut	Sucked peanut into windpipe	24 hours	Suffocation, coughing, wheezing, choking	History and symptoms	Probably peanut in windpipe	Ether	Tracheotomy. Low bronchoscopy. Foreign body removed	None	Wound not sutured. Covered with fluffed gauze	Foreign body removed	14
15	26	M	W	Particle of oyster	Eating oysters, developed symptoms of foreign body	4 days	Sore throat; inability to swallow solid foods	History, symptoms and x-ray	Portion of oyster in esophagus, opposite seventh cervical vertebra	Local	Esophagoscopy. Particle of meat removed	None		Foreign body removed	15
16	3	M	W	Coin	Swallowed nickel	8 days	Inability to swallow solid food	History, symptoms and x-ray	Foreign body just above sterno-clavicular junction	Ether	Suspension laryngoscopy. Foreign body removed	None		Foreign body removed	16
17	2	M	W	Grain of corn	Sucked grain corn into windpipe	1 days	Labored respiration; cough, increased temperature	History and symptoms	Pneumonia, and probably foreign body in windpipe	Local	Tracheotomy. Low bronchoscopy. Foreign body not found	Pneumonia	Wound left open. Covered with fluffed gauze	No foreign body located. Good recovery from pneumonia	17
18	3	M	W	Coin	Swallowed penny	1 hour		History and x-ray	Foreign body upper end esophagus	Ether	High bronchoscopy. Foreign body removed	None		Foreign body removed	18
19	1	M	W	Bean	Got bean into trachea	3 days		History	Foreign body in windpipe	Ether	Tracheotomy. Low bronchoscopy. Foreign body removed	None	Wound not sutured. Covered with fluffed gauze	Foreign body removed	19
20	1	M	W	Coin	Swallowed penny	3 weeks	Inability to swallow solid food	History, x-ray and fluoroscope	Foreign body in esophagus	Ether	Esophagoscopy. Small Jackson speculum	None		Foreign body removed	20

where it can be grasped and removed with forceps. This occurred in a few of my cases. In order to facilitate the coughing up of the foreign body, as a grain of corn, into the tracheotomy wound, it is desirable, as soon as the trachea is opened, to reduce the amount of the anesthetic, so that the patient is encouraged to cough, and so occasionally the foreign body will be coughed into the wound.

Tracheotomy wounds should not be closed immediately, but should be left open and allowed to granulate, thus avoiding the danger of emphysema.

In thirteen of the twenty cases the foreign body was located and removed; in two cases, it was expelled naturally; and in five cases, was not located at all.

There were two cases of pneumonia following the operation, with one death and one complete recovery.

In conclusion, I submit the following:

1. The symptoms produced by foreign bodies in the air tract are very characteristic, and often pathognomonic, and great weight should be given to the history in making the diagnosis.

2. Before any operative procedure is undertaken, every reasonable effort, by physical examination and, in suitable cases, by x-ray, should be made to determine the presence and location of the foreign body.

3. Roentgenograms and the fluoroscope, while of the greatest aid in the diagnosis of metal and other foreign bodies which will produce a shadow, are of little or no value if the foreign body, as in the case of most bodies of an organic nature, will not produce a shadow.

4. The best illumination for bronchoscopes and esophagoscopes is that with the lamp at the distal end of the tube—i. e., the end of the tube entering the trachea or esophagus, as this not only gives the best illumination of the foreign body, and that without interference with other manipulations, but can also be used in a light room.

5. In doing bronchoscopic work, suspension laryngoscopy, as practiced by Lynch, is of great aid.

6. As advised by Jackson, no bronchoscopic work should be undertaken without previous

preparation for an emergency tracheotomy, should it become necessary.

7. A tracheotomy, either high or low, preferably a low tracheotomy, may with advantage in certain cases be done as a preliminary, and low bronchoscopy used for the removal of the foreign body.

8. The tracheotomy wound should not be closed, but should be left open without a tube, and merely covered loosely with a piece of fluffed gauze to prevent the entrance of dust, and allowed to heal by granulation.

9. In the case of a foreign body in the esophagus, failure to find it by esophagoscopy should be followed immediately by fluoroscopic examination, provided the foreign body is visible with the fluoroscope, the object being to determine whether the foreign body remains in the esophagus or has passed into the stomach.

STATE CARE OF THE INSANE.*

By W. Scott Farmer, M. D.,
Superintendent of Central Hospital,
Nashville.

"State care" is definitely understood to be the care of the dependent insane, exercised by the State as State charges, not in any way under the care and management of county or town officials.

For many years in Tennessee there were many of our insane confined in county houses, and their treatment and their care was left to inexperienced persons, like county commissioners and overseers of the poor. The majority of our counties have not the facilities for the proper treatment of the insane, and no insane person should be confined in any poorhouse or county jail, but all should be transferred to a State hospital as speedily as possible. Many of the insane transferred not only from our county houses, but from some of our Tennessee homes to our State hospitals will find a new world of hope and in many instances will be restored to a useful life and returned to their loved ones, for those ancient fallacies as to manifesta-

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tions of the malign influence of evil spirits in persons "distempered in mind," and as to the role in this connection of witchcraft, the moon, and other mysterious agencies, have been dissipated in the light of advancing knowledge, and we now know that an insane man is a sick man and should have the benefit of scientific treatment along progressive lines, with as much interest and enthusiasm manifested in his case as if he had pneumonia, empyema or tuberculosis. One writer has said that of all the sick, those suffering from mental disease have shared least in the great advances of medicine, in treatment and nursing; for these unfortunate people were thought to be suffering from a condition so mysterious that no one could understand, and our institutions for the insane were run as detention camps and places to store away the undesirables of every community, there to be forgotten and lost to the outside world.

It is only in the last few years that even the medical profession have learned that insanity is a disease, not specifically different from physical disorders, and that the care and treatment of our insane is a medical problem. Even today many members of the medical profession have given the subject so little thought that they believe the insane, the idiots, the imbeciles, epileptics and "dope fiends" should all be congregated together under the same roof.

In this connection, I want to call your attention to the fact that an insane man is a rich man made poor. The idiot has always lived in misfortune and poverty. The feeble-minded lack something. The insane are suffering from a disorder of that which they possess (White). The treatment of the insane is often curative; the treatment of the feeble-minded is purely custodial, and these should be in separate institutions. The epileptics should not be sent to our hospitals for the insane, and should also be in a separate institution. Many of our States take care of their epileptics and feeble-minded in the same institution, as a matter of economy. You can imagine how depressing to any patient who has an acute attack of insanity and who is just waking up, so to speak, to find himself in a new and strange home, to look around to find some half dozen or more patients having one epi-

leptic seizure after another; and added to this he may also find several tuberculous patients rooming on the same ward, who are being consoled by a like number of pellagrins, with uncontrollable diarrhoea; and, as he further makes a survey of his surroundings, he may see other patients in strait-jackets, muffs, camisoles, wristers, and many other forms of restraint; with a dreary and desolate ward to occupy, whose walls have not had a coat of paint for a quarter of a century; with no recreation or active interest taken by anyone in anything. The terminal process of deterioration is the inevitable in an insane person brought into such an environment.

I am glad to report, however, that the above does not apply, in toto, to our Tennessee hospitals, as we are making an honest effort towards improvement. Proper classification is attempted, mechanical restraint is seldom used in our institutions at the present time, and at Central Hospital the new patient is placed in a receiving ward, which is one of the best in our institutions, given a bath, shave and shampoo, clean clothes, pleasant surroundings, a good attendant to look after his needs, a nice dining room and meals well prepared, and a nice clean bed to sleep in. When he looks around he will find his fellow patients employed in some form of occupation, and all who are able are required to take exercise out of doors. When indoors he will find periodicals, papers and magazines, various games, the weekly moving picture show, and can attend church service once a week, if he so desires, and his health will permit. If he is a little nervous, in place of mechanical restraint, he is given the benefit of our hydrotherapeutic equipment, and after a prolonged bath we often see a decided improvement in the mental condition, which often continues until the patient is able to be discharged. You can find in our state hospitals at the present time an atmosphere of kindness prevailing which formerly did not exist, and which is so essential in the management and treatment of mental disease. While I am glad to report that our state hospitals have made much progress in the treatment of insanity in the last four or five years, the work along scientific lines has only just begun, and everyone realizes that our state

hospitals are far from being ideal. In this connection, may we not inquire and find out some of the reasons why state hospitals have not been as well equipped and as well managed as general hospitals?

First.—The inducement and compensation offered by superintendents and assistants by many of our states is not sufficient to interest the best qualified physicians to engage in this line of work.

Second.—In many of our states our institutions have been dominated and controlled by politicians, and, as a result, every time a new Governor was elected a new superintendent was appointed and he, in turn, would get new men to work under him. This process in the past has been repeated every two years, and the burden has fallen heavily upon the unfortunate patients, as well as the taxpayers. The records of many hospitals will show the patients never had a complete physical and mental examination, and that these unfortunate people had been herded together like cattle in a pen, there to stay until death came as a blessing to them.

The custom which has prevailed in some of our states of operating state hospitals along political lines cannot be too strongly condemned. It is the duty of the medical profession to educate our politicians and lawmakers that the administration of a hospital, although it involves great financial responsibility, is essentially a medical problem and will always remain so. The state should encourage physicians in state hospital work to utilize every possible opportunity to keep themselves abreast of the times in all departments of medicine. Our state should assist and encourage physicians at our state hospitals in the study of mental disease and in scientific research along these lines, as far as possible, and they should have the opportunity of attending courses of instruction, in both psychiatry and pathology, in the best institutions of our country.

Third.—During my short experience of three and a half years in state hospital work I have visited many institutions in other states. In many I find progressive physicians; in others I have found physicians who are actually impeding and are a drawback to the work. They recognize that their "jobs" are pure-

ly political and that their stay will be short, and they seem to have very little responsibility. In many ways their positions are pleasant and profitable only to themselves, and could not be called stimulative. They have become institutionalized—a term that implies narrowness, rather than breadth of view, and they themselves, like their patients, seem to be deteriorating, especially along medical and therapeutic lines.

Another drawback in the treatment of mental disease is the absence of trained nurses in the majority of our institutions, as a result of which ward service is often unsatisfactory. Everyone knows that nursing the sick should be considered as a specialty of no mean importance. Fifty per cent of the nursing force, ordinarily known as attendants, at state hospitals, change several times each year, on account of the poor salaries received from the states, and because of other causes which bring about low efficiency.

No system of care of the insane can be permanently successful without a sustaining public opinion, and no method of moulding public opinion is equal to the presentation of facts. The per capita allowance for each patient in our state institutions is only fifty-two and seven-ninths ($52\frac{7}{9}$) cents per day, and when out of this all the expense of running a large plant, including the salaries of all employes, is deducted, what is left is only a very small amount to be expended for the comfort and treatment of the unfortunate ones.

Much more liberal allowance is made for the criminals in our jails. If a criminal is arrested and placed in jail, what does our state say to him? Here is the answer: "We will allow the sheriff seventy-five (75) cents per day to feed you, and in addition, furnish the health officer to look after your health." Is this fair to the sick man who has to enter one of our state hospitals? Can we be expected to give the service needed on fifty-two cents per day?

Not all the insane are confined in our state hospitals. Recently I have been doing some work at our state prison, where we often find that the convict, according to his history and symptoms, was insane at the time he was committed to prison. Criminology

shows us that about one-half of all criminals, paupers and prostitutes are either feeble-minded or insane. No convict in our state prisons should be eligible to parole except they first have had a thorough mental test made by some one experienced in psychiatry. If found to be mentally deficient to that extent that would make him a menace to society, the convict should be transferred to an institution for the insane or for the feeble-minded, as his case may demand. A large per cent of convicts in the various states are known as "repeaters"—that is, have served more than one term, some having served terms in different states. That, of itself, is *prima facie* evidence that the man cannot keep out of trouble and that something is radically wrong in his mental make-up. Our state is charged with the duty of educating her people in essential public health matters—such as the care and feeding of infants, the danger from flies, improper drainage, etc. Why should not our state educate her citizens in mental hygiene? We hear much about good roads in Tennessee at the present time. But what does a good road amount to if a man has not sense enough to travel it?

We need in our larger cities of Tennessee—Knoxville, Chattanooga, Nashville and Memphis—psychopathic hospitals in close relation to the police and juvenile courts, to which persons of doubtful mental condition could be sent for a period of intensive study, pending which a judicial decision should be postponed. A hospital of the above type would cause many other people to come for diagnosis and treatment, voluntarily, and in many cases suffering from mental disorders would be seen in their early and curable stages, before their malady had reached a point that would render necessary a legal commitment to a state hospital, against their will. Dr. Ray Lyman Wilber, of the Leland-Stanford University, recently said (Annual Conference of the Council on Medical Education, Chicago, March 1-3, 1920):

"We put tens of thousands of the mentally sick into great isolated institutions, largely without medical students or training schools for nurses. Through competent administrators

we care for them reasonably well, but we have learned, and are learning, but little of mental disease. The ignorance of the average medical man of psychology and psychiatry is painful."

He further said that every such hospital should be a live optimistic center for study, and not a pen for the lingering care of the hopeless or semi-hopeless. "We should not think of medical education in the future without bringing the stimulus of the student to all such hospitals and likewise bringing one such hospital into the closest contact with every university medical school."

Some idea of the number of mentally diseased persons in the United States can be gathered from the fact that there are over two hundred thousand insane under treatment in our public institutions (U. S. Public Health Service). Each year thirty thousand new cases are admitted, and the expense to the public alone, at the low per capita, exceeds all other public expenditures except that for public education. The annual cost amounts to forty million dollars, that must be met from the current revenue of the states. The problem of the control and prevention of mental disease is, therefore, of no little importance.

The question naturally arises: What is a modern requirement for successful treatment of mental disease? As outlined by Dr. Arthur P. Herring, Secretary of the Maryland State Lunacy Commission, to the Governor of South Carolina, it is:

First. Direction of the administration of the hospital and leadership in the medical work by a physician, trained in diagnosis and treatment of mental disease.

Second. An adequate medical staff, organized so that the duties are divided in accordance with the training of its different members, and with the requirements of clinical work.

Third. Regular and frequent conferences of the medical staff at which the diagnosis, treatment and prognosis of each new case admitted are considered and at which cases about to be discharged are presented; training in psychiatry for new members of the staff.

Fourth. The reception of all new cases in a special department or in special wards,

where they may receive careful individual study, and where those with a recoverable psychosis may receive continuous individual treatment.

Fifth. Classification of all patients, with reference to their special needs and their mental condition, such classification being flexible enough to permit frequent changes.

Sixth. A system of clinical records which permits study and review of the history of cases even after they have been discharged.

Seventh. A laboratory in which some of the most useful tests required for the study and diagnosis of mental diseases, as well as those required in general clinical diagnosis, can be made and in which pathological material can be studied.

Eighth. Provision for special treatment, such as hydrotherapy, electrotherapy, etc.

Ninth. Provision for examination and treatment by dentists, ophthalmologists, gynecologists, etc.

Tenth. An adequate number of trained nurses and the maintenance of a school for nurses, under the direction of a supervisor of nurses, who should have not only training in general nursing, but special training in nursing those with mental disease.

Eleventh. The employment of female nurses in the reception and infirmary wards for men.

Twelfth. The systematic use of occupations for their therapeutic effects, under the direction of workers especially trained for this duty.

Thirteenth. Special attention to recreation and diversions, with reference to their therapeutic value.

Fourteenth. Liberal use of parole, especially for quiet, chronic patients, who can live in farm houses.

Fifteenth. Special provision for the tuberculous and pellagrins.

In closing I want to emphasize the fact that the mental disease problem not only affects society as a whole, but directly or indirectly affects every individual member of the community. The proper care and treatment of the insane should be regarded as a community investment. The failure to relieve only one patient through a lack of proper care and treatment (to say nothing of the thousands) means a great economic loss. The proper treatment

of the insane should be regarded as a form of social insurance. It is absolutely impossible for any superintendent of one of our state hospitals to give these unfortunate people what they so richly deserve in proper care and treatment, unless we can have the hearty cooperation and support of all our citizens. Each physician of the Tennessee State Medical Society is a stockholder in our state hospitals. Will you help to elevate their standards?

DISCUSSION.

Dr. R. E. L. Smith, Knoxville: Mr. President, I have listened with a great deal of interest to Dr. Farmer's paper, not only because it was Dr. Farmer's paper, but because I have been deeply interested in that work. I am glad indeed to hear his ideals as to the correct treatment of the insane, and especially from the standpoint of the state, which I believe is the only individual that should have the care of the insane. Any insane man is more or less an element of danger, a menace to the community and to society in general. The state alone has the authority to take him and rob him of his individuality and place him under control, where he is safe to himself and safe to the community. There is always a more or less waste in the matter of charities that are being done in a public way. I used, in my own home county, to have charge of the poor farm, or the poorhouse, as we call it, in that county, and while I refer to that county I think that what I say in regard to that county will apply to any other county in the state. There was always one element that seemed to predominate, and that is that the officials that have charge of such institutions work for a small salary, and as a result there was not the same thoroughness displayed in their management as there is in private and state institutions. It is almost impossible for the state of Tennessee or any other state to care for their insane as they should with the amount of money that is set apart to be expended for this work, which should be at least twice what it now is. The work is a very trying and worthy work. It is one of the most essential things, the very highest type of work, that the state can do, and I think she should do it well. I am glad to see that in the later years there has been a considerable improvement along this line, and while I have not been directly connected with this work but a short time, I have noticed that a great deal of progress has been achieved in this field. During the later years there has been a tendency on the part of these institutions dealing with this character of people to elevate the standard and improve the methods of dealing with them. And the sooner the medical profession get from under the old worn-out idea of treating the insane as

they have been treated in years past, the better it will be for humanity.

Formerly these institutions were not looked upon as hospitals, and they were not run upon the idea of a hospital and scientific basis. They are now getting down to a pathological idea and treating them as people who are diseased, and following the lines of disease just as you would in the case of typhoid fever, pneumonia, etc. A radical change is being accomplished. As far as my own opinions are concerned, I realize the fact that something can be done. These patients should be sent to these institutions in time when something can be done for them. It is just as important that they should be sent to such an institution early as that a patient who has tuberculosis should be sent to a tubercular institution early in the state of the disease. If not, then time is lost which is of vital importance to the patient, and it requires more time, and he will recover, if at all, much slower than if he had been sent earlier in the progress of the disease. I do not think that I can offer any criticism of Dr. Farmer's paper; it only voices my sentiments in connection with this very important subject.

Dr. O. Dulaney, Dyersburg: I wish to ask Dr. Farmer when he says that the state provides 52 cents a day for the care of each individual if that includes everything?

Dr. Farmer: Yes, sir.

Dr. Dulaney: I say, gentlemen, that it is high time that the medical profession of Tennessee should wake up and take some action looking into the improvement of such a deplorable state of affairs. The poor and indifferent manner that the people are handled in these institutions is inexcusable. The medical profession should see that some improvements are made to correct this state of affairs. As Dr. Farmer has said, it is not possible for one physician to properly take care of these people. There should be a medical staff for these institutions composed of men who are experienced in the care of the insane and others who have given their time and study to special lines of work, according to the recommendations made by Dr. Farmer. Dr. Smith and Dr. Farmer know that the State Legislature is not going to do anything unless some pressure is brought to bear on them or unless they can see that they are to derive some benefit from doing it. The great trouble in this state has been that the medical societies have failed to appoint a legislative committee, or to elect one, that has any authority to do things along this line.

I am going to recommend to the House of Delegates and ask that each one of you help along

in this matter and see that a legislative committee be appointed by each county society, that the state society have one man appointed from each grand division of the state—one man to serve one year, one to serve two years and one three years, so in this manner we would not have to elect all three the same year. Also, in this way each man from his grand division of the state could recommend certain matters pertaining to his special section, and then they could be presented in a proper manner.

The county societies should co-operate with the main society and also with the secretaries and editors in selecting the legislative committees, because something must be done to aid these institutions. I do not see how Dr. Farmer can possibly do what he says with the small amount allotted per inmate. I am connected with a hospital myself, and I know something about the cost of caring for each patient. I would like to ask if that appropriation includes clothing.

Dr. Farmer: No; clothing is being furnished by the counties now.

Dr. Dulaney: You cannot properly feed them on 52 cents a day—you cannot do it. (Applause.)

Dr. Farmer (closing): I want to thank Dr. Smith and Dr. Dulaney for their discussion in bringing the paper before the society. I know that many members of the medical profession do not know the circumstances or conditions that surround these institutions. These cases furnish plenty of ground for medical and scientific work. No one knows, unless they have undertaken it, how inadequate 52 cents per day is to take care of these poor unfortunates. Think of running an institution with a pay roll of nearly \$5,000 a month on this little stipend! The modern method of running these institutions is to run them as hospitals; to give their patients a thorough physical and mental examination just the same as you would in any other hospital. We know that we should do as good work as in general hospitals, except, of course, that it is along different lines. I felt like if this subject was presented to the medical profession that they would aid the Legislature in doing something towards the proper care of these institutions. It does no good to tell the Democratic party or the Republican party about these things. What you want to do is to tell it to the taxpayers. I believe that if the subject were properly presented to the taxpayers of Tennessee that they would take a pride in building up such hospitals in different sections of the state so that the insane could be adequately cared for. I thank you. (Applause.)

TRAUMATIC MUSCULO-SPIRAL PARALYSIS COMPLICATING FRACTURE OF THE HUMERUS.

By Jere L. Crook, A.M., M.D., F.A.C.S.,
Jackson.

One of the most unfortunate complications of fracture of the humerus is injury to the musculo-spiral nerve which results in paralysis of the supinator and extensor muscles of the forearm. The typical deformity following paralysis of this nerve is known as "wrist-drop." The hand drops at the wrist, with the fingers flexed, due to the paralysis of the extensors. This nerve is the largest branch of the brachial plexus. We learn in the anatomical description of it that "It arises from the posterior cord, and descends behind the third part of the axillary artery and the upper portion of the brachial. It accompanies the superior profunda artery into the interval between the inner and outer heads of the triceps, winds around the musculo-spiral groove, descends between the supinator longus and brachialis anticus to the front of the external condyle, where it divides into the radial and posterior interosseous branches.'

The function of the musculo-spiral nerve is, 'to supply the muscles in the back of the arm, all the supinators and extensors of the forearm; it sends branches to the elbow and wrist-joints, supplies a strip of skin in the middle and back of the arm and forearm to the wrist, the dorsal surface of the thumb, index and radial half of the middle fingers.'

As it lies in the musculo-spiral groove it is in very close relationship with the humerus and is therefore more frequently injured than any other nerve of the brachial plexus. In fracture of the humerus the resulting paralysis may be due to laceration of the nerve, its involvement in the subsequent callus which is formed and binds it to the bone, or it may be completely severed by a sharp fragment of bone. Temporary paralysis of the nerve may be caused by sleeping with the head pressed against the arm, or by allowing the arm to hang over the edge of the operating table while the patient is

under anesthesia. Lead-poisoning is also sometimes the cause of its paralysis.

If the paralysis be due to contusion it will be cleared up in a few weeks and no operation will be required. Where it occurs soon after the injury to the bone it is better to wait until bony union occurs before doing an open operation to repair the nerve. By the time that union has occurred the paralysis will have disappeared unless the nerve injury is sufficient to require an open operation for its repair. The symptoms of contusion of the musculo-spiral nerve may only consist of slight pain at the injured place, and a tingling and numbness along the distribution of the nerve. The tingling and numbness may remain for several days and they may be associated with shooting pains. These will disappear, unless the injury to the nerve is severe, when there will be complete anesthesia and paralysis of the nerve below the place involved. If the symptoms persist after bony union has occurred it is reasonable to infer that the nerve will not heal without operative interference.

A review of the literature shows that the question of injury to the musculo-spiral nerve has been treated by many authors. Dr DeWitt Stetten in *Annals of Surgery*, August, 1908, gives a resume on musculo-spiral paralysis from 1878 to 1906 in which he refers to more than forty authors. His paper is largely devoted to musculo-spiral paralysis as a result of dislocation of the head of the radius, which he says is a distinct type of nerve injury and that in every case of anterior dislocation of the head of the radius the two divisions of the musculo-spiral nerve are in danger; and it is a fortunate accident if they escape.

In the *Medical Record*, May 30, 1914, Alexander S. Leverty gives a report of 331 cases of traumatic nerve paralysis of the upper and lower extremities, 54 per cent of which were musculo-spiral cases.

Oscar Gray in *The Journal of the Arkansas Medical Society*, April, 1918, gives a report of two cases of fracture of the humerus complicated with musculo-spiral paralysis.

J. G. Adams in the *U. S. Naval Bulletin*, Vol. XII, 1918, reports a case of traumatic paralysis of the musculo-spiral nerve caused by pressure of the rifle strap while firing. Disability

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

in this case commenced while firing, and examination the following day showed a complete loss of sensation over the area supplied by the superficial branch (Radial N) while wrist drop inability to extend the wrist and fairly complete paralysis of the extension of the hand showed involvement of the muscular or deep branch (Posterior Interosseous N). By the use of massage, strychnine and mild counterirritation the patient was returned to duty in four days.

P. J. Byrne in *The Practitioner*, June, 1916, gives a report of a case of Murphy's operation, or the transplantation of the flexor carpi radialis into the extensors of the thumb and fingers in musculo-spiral paralysis. The patient in this case had complete musculo-spiral paralysis due to a wound in his arm which had been allowed to heal partially. The author gives a careful description of the method of procedure in Murphy's operation as performed upon his patient, and the results which were very satisfactory. In concluding he says, "The ideal operation for musculo-spiral paralysis caused by division of the nerve is neurotomy when possible, otherwise, tendon transplantation is a most satisfactory solution of a condition, which, thanks to Murphy is no longer outside the scope of modern surgery."

Carl Beck in *Surgical Clinics*, April, 1918, reports a case of "musculo-spiral palsy treated by neuroplasty and tendon transplantation" in which he covers the following points: "Case history—fracture of humerus with laceration of musculo-spiral nerve and resultant wrist-drop; two unsuccessful operations—failure to identify and unite the nerve ends; neuroplasty with fat and fascial tube by Dr. Beck; transplantation of tendon of insertion of flexor carpi ulnaris into common extensor tendon. Results: Two weeks after Dr. Beck's operation the fingers showed evidences of return of extensor power. The musculo-spiral nerve showed beginning activity, and sensation had returned. Twelve weeks afterward the patient could hold his hand, even with the arm extended at a right angle, in line with his arm, while formerly he had absolutely no such power, even with the aid of the transplanted flexor muscle. Before the operation by Dr. Beck, seven months after the injury and five months after the second

of the two previous operations the arm was totally paralyzed and atrophied in the paralyzed muscles.

R. Atkinson Stoney in the *British Medical Journal*, July 3, 1915, gives an account of a case of "Bullet Wound of the Musculo-spiral Nerve," in which the patient had been wounded by a rifle bullet on the outside of the right arm, just above the elbow, about a fortnight before coming to the attention of Dr. Stoney. He had been treated at a hospital close to the front, and while there about five days after he was wounded had a severe hemorrhage, which was stopped by an operation at which time the musculo-spiral nerve was also sutured. Whether the nerve had been divided by the bullet or was cut during the operation the doctor was not able to discover. There was complete loss of power of the extensor muscles of the wrist and fingers, and loss of sensation over the area of distribution of the radial nerve. He was treated by massage, movements, and electricity (both faradic and galvanic). At the end of two months the sensation was commencing to return, when he was removed to a special hospital for mechanotherapy. From his case and three others, two of bullet wound of the ulnar nerve, and one of the bullet wound of the external popliteal nerve, the author makes the following conclusions:

1. The function of a nerve may be interrupted without material injury, in which case the loss of function is only partial and returns early; probably always within a fortnight or three weeks.

2. When a nerve is partially or wholly divided loss of function is marked and permanent, and may even tend to increase. In these cases it is useless to expect spontaneous regeneration owing to the distortion and separation of the cut ends and the great development of dense fibrous tissue which appears to follow in all cases.

3. When a nerve is divided, the sooner an operation for its suture is performed, the easier it is and the greater the likelihood of an early cure. In cases, however, where the wound is septic, it may be advisable to allow time for the wound to heal.

4. Even when nothing has been done for several months, there is still a chance of a success-

ful result if late suturing is undertaken, so that no case need be looked upon as necessarily hopeless.

In an article by M. S. Danforth on "The Diagnosis and Treatment of Nerve Injuries," *J Orthop, Surgery*, 1919, xvii, 593, and abstracted in, "Surgery, Gynecology and Obstetrics" for February, 1920, we find his paper is based on a study of patients with nerve injuries at the Edinburg War Hospital. He outlines the routine points in the medical history, examination, and pre-operative treatment. Before operating his general working rule was to wait for from six weeks to two months after complete healing of the wound. This period was employed also to improve the muscle nutrition, correct the deformities, and restore the flexibility of the joints. Appropriate splinting protected the muscles from stretching. Hot soaks were followed by massage, active and passive motion, and electrical stimulation. Deformities were corrected by manipulation with or without anesthetic. The restoration of flexibility of the joints, most difficult in the smaller joints, was accomplished by massage and hydrotherapy in some instances, but best of all by elastic traction in the lines of deformity.

"Questions in Relation to the Treatment of Peripheral Nerve Injuries," discussed by W. W. Babcock in *The Medical Record*, 1919, page 664, and also abstracted in *Surgery, Gynecology and Obstetrics*, February, 1920, gives the following: About 420 patients with evidences of peripheral nerve injury were admitted to Ft. McPherson between October 1, 1918, and June 1, 1919. Over 510 nerve lesions were studied in these patients, and 328 operations were performed upon peripheral nerves. More than half of the injured nerves (165) were subjected to neurolysis, usually with herbage, and 163 complete or partial divisions of nerve trunks were treated by suture.

In this series injuries of the ulnar nerve were first in order of frequency, those of the musculo-spiral nerve were second and those of the median nerve, third.

A careful statistical study by Spear showed that the patients subjected to operation made better and more continuous progress than those with less serious injuries who were treated only by massage, electricity, etc. In a series of 75

cases treated by herbage it was found that although in a few the condition was temporarily made worse by the operation, at the end of two or three months there was usually a decided improvement. After neurolysis a few patients improved very rapidly but in a large proportion the improvement was slow—almost as slow as after suture. After suture no immediate improvement was observed. The partial splitting of a nerve trunk in its component bundles and the rerouting of the nerve filaments through muscle, intermuscular planes, or under subcutaneous fat did not seem to jeopardize function. The author's conclusions as a result of the study of these cases may be summarized as follows:

In the diagnosis the most important evidence is obtained from the sensory and motor loss; the former is determined chiefly by mapping the loss to tactile and painful impressions; the latter by studying voluntary contractions in muscles. Electrical reactions may be misleading in the preliminary examination and the electrical return may so lag behind the sensory and motor return as to have little value in determining regeneration.

2. Indications for operative intervention are: (1) persistent total or partial interruption in a nerve; (2) doubtful nerve lesions in which careful study has shown the desirability of exploration.

3. Reoperations are justifiable after neurolysis when improvement has not occurred after proper postoperative treatment in three months and sometimes as early as one month. After neurolysis and nerve grafting reoperation is justified if twice the normal time for neuraxons to penetrate from the lesion to the periphery has elapsed without evidence of regeneration.

In the April, 1920, copy of *Surgery, Gynecology and Obstetrics*, W. A. Brennan abstracted a paper by Auvray on "The End-Results of Operations Upon 39 Wounds of the Radial Nerve Performed in 1915 and 1916."

Thirty-one of the 39 cases of radial nerve injuries operated upon by Auvray have been traced. In 15 there had been simple liberation of the nerve; in 11, an end-to-end suture; in 2, suture of the upper end to the lower end; in 1, an anastomosis to the internal brachial nerve; in 1, the insertion of a graft of the internal

brachial nerve; and in 1, the excision of a cicatricial nodule.

There were 17 recoveries. In 5 there was definite improvement but not complete recovery; in 2 there was slight improvement; and in 7, no improvement.

Auvray therefore concluded that the results of surgical operations upon wounds of the radial nerve may be considered very satisfactory since of the 31 patients operated upon 22 reported a cure or very great improvement after a long interval.

Liberation of the nerve and suturing have given equally good results. In 15 cases of nerve liberation, recovery or very great improvement resulted in 12, while in 11 cases of suture there were 8 recoveries. These good results occurred in even the most severe injuries of the radial nerve and though the operation was performed a long time after the injury.

Operation for the relief of the condition causing musculo-spiral paralysis complicating fracture of the humerus should thoroughly expose the tissues in the region of the nerve, and also over the site of the fracture so that a free inspection of the parts may be had. Should the nerve be found adherent to the bone, bound down by the callus which has formed, it should be carefully dissected out and a piece of muscle sheath should be placed between it and the bone below so that it may not reunite to the bone. In the event that the nerve has been severed it is necessary to secure both ends and do a careful neurorrhaphy, using great care in the handling of the nerves, and in placing the muscle sheath between it and the bone as stated before.

The case which I present for the consideration of the Association is that of a young man, J. R. T., 23 years old, whose home is at Luray, Tenn. About September 15, 1919, he sustained a fracture of the humerus at the lower third while working in a sawmill. The injury was cared for by a local physician, the arm being set and dressed in splints. The bone united with slight overlapping of the ends, but firm bony union occurred. When the splints were removed finally it was found that there was complete musculo-spiral paralysis causing typical wrist-drop.

I first saw this young man on December 26th

more than three months after the original injury occurred. I had an x-ray picture made which I here present, showing the overlapping of the bones; however, at that time union was firm at the site of fracture. I told him his paralysis was not due to pressure of the splints nor to the slightest deformity at the site of fracture, but was caused by an injury to the musculo-spiral nerve, and that an operation would have to be performed to relieve him. I also told him it might be necessary to refracture the bones and apply a plate in addition to releasing the nerve. He consented to the operation and on Dec. 30th. it was done in our sanatorium.

A straight incision six inches long was made over the site of the fracture, the muscle sheaths carefully separated, and the upper end of the nerve was found caught in the callus. It was entirely severed from the distal end which was found with some difficulty an inch below the proximal end. The lower portion of the nerve was very greatly attenuated, a mere filament in fact, which was so slender and delicate that I could hardly believe it would ever regenerate. It was carefully dissected out together with the upper end and united with two fine 00 catgut sutures, the distal nerve filament overlapping the proximal for a space of one-half inch. Muscle sheath was placed between the sutured nerve and the bone and a second layer of muscle tissue carefully sutured above it, enclosing it in this muscular bed. The other tissues and the skin were sutured in the regular manner, and the arm was placed in an angular cock-up splint, holding the hand and wrist flexed at an angle with the arm, as illustrated by the splint which I present. The wound having healed by primary union the patient left the hospital ten days later.

He returned at intervals and his arm was treated with violet rays applied January 12th., 15th., and 19th. He returned again about the middle of February and at that time had slight use of his wrist, being able to use the fingers and lift the wrist slightly. This was very encouraging, and I told him to soak his arm and hand often in hot water and practice general massage of the parts with alcohol, keeping his arm on the inclined splint which I have shown. He returned again early in March with still more improvement and again on March 20, and

and very much to my delight was able to lift the wrist and use the fingers almost normally. The picture which I present shows the condition of the arm on March 20th., a little over three months after the operation.

So complete a restoration of function three months after operation is the exception rather than the rule. Five to eight months is the average time required for complete function to occur. In this case I wish to call particular attention to the method of repair of the nerve. An end to end contact was not feasible because the greatly attenuated lower portion of the nerve could not be accurately held in end to end contact; so, as stated, neurorrhaphy was done by overlapping and placing a stitch in the end of each fragment. The contact was about one inch laterally.

This type of repair is one that I have not seen advised in any treatise on nerve surgery nor anywhere in the literature. The slight filament remaining of the distal portion of the nerve I believe was devoid of its sheath. I felt that the chances of its reuniting with the proximal end would be greater by overlapping and inclosing in a muscular bed than by attempting end to end suture. It is a well known fact that after severance of the trifacial nerve, or even resection of a portion, union is often re-established with normal return of conductivity. The movements of the arm tend to draw the ends of the nerve apart, and I feared would break the contact. With the one-half inch overlap and probable exposed filament in the lower end I believed that conductivity would be finally re-established, with the support afforded by the muscle sheaths.

The results in the case reported prove conclusively that nerve repair took place quite promptly with restoration of function in the muscles supplied by it.

DISCUSSION.

Dr. Ed Newell, Chattanooga: I am sorry that I did not hear all of Dr. Crook's paper; it is a very interesting subject. I recently had two cases in which the nerve was involved, one the musculo-spiral and the other the median. Both were sutured and we have very satisfactory results in both cases. I want to report them. One was a little boy brought in to me about two months after the injury of the musculo-spiral, produced by a fracture in the lower third of hu-

merus, just a little above the joint; a spicule of bone had pressed against the nerve, producing paralysis and drop wrist. We cut down on the nerve and found that it was not completely severed; that it was surrounded by a little callus tissue and some cicatricial tissue. We decided to remove the callous tissue and tucked some fat around it to avoid injury to the nerve by adhesions. I had a letter from the doctor who referred him to me, two or three months afterwards, saying that the nerve was functioning all right, and the operation seemed to be a perfect success. I had a similar case referred to me recently; a young fellow from the country, who had sustained an injury that resulted in loss of function of the median nerve with complete paralysis. We operated on him and the doctor reported to me about two months ago that the patient was progressing nicely. I notice the doctor over there now; how is he getting along, Dr. Broyles?

Dr. Broyles: The function is completely restored.

Dr. Newell: How long has it been, doctor?

Dr. Broyles: I judge it has been about six months.

Dr. Newell: The doctor reported about two or three months ago that he was progressing very nicely. Most authorities say that a nerve injury should be operated on as early as you are positive that there is not going to be a restoration of the function of the nerve. While we wait on those cases, (I don't believe that we should wait too long. Where you have a definite, clear-cut injury, and where there is no interference with the blood vessels, and where there is loss of function, the sooner you operate the better. We have gotten very good results from suturing nerves. I would not hesitate in these cases to cut down on the nerve, bring the ends of the divided nerve in contact with each other, suturing the sheath, and if necessary pass the suture into the nerve substance, though it is better to suture only the sheaths.

Dr. Jere L. Crook (closing): Gentlemen, I appreciate the discussion of my paper. In closing I merely wish to emphasize the fact that an end to end contact in this case was not feasible because of the greatly attenuated lower fragment of the nerve. In deciding to overlap the fragments and support the union on a layer of muscular sheath followed by the use of a splint to prevent the tension on the delicate union, I felt that I was giving nature the best possible chance. It is a well known fact that the tri-facial nerve after being severed and a portion removed will in nearly every instance recontact and regenerate itself with a return of the pain. I therefore felt that the same thing might reasonably be expected to occur in the musculo-spiral nerve if it were supported by the muscle sheaths as explained heretofore. The one-half inch overlap, in my

judgment, would give a better chance for restoration than to have attempted an end-to-end contact. There is a tendency for the ends to be pulled apart anyway, but by placing a muscle sheath underneath and one above, we made a firm support for the sutured ends, and this aided in keeping them from slipping entirely apart. The prompt recovery of function and relief of the paralysis within three months proves conclusively that nature took care of the situation. I am not trying to lay down rules of technique based upon one case, but inasmuch as this case has recovered completely following the operation as detailed, I felt that it should be reported on its merits.

CLINICAL REPORTS

DENTIGEROUS CYST OF MANDIBLE.

By R. W. Grizzard, M. D.,
Nashville.

This growth was on a patient who came to Vanderbilt Hospital on June 14, 1920. The patient was a well-nourished negro man, nine-



teen years of age, with a growth on his chin as large as a good-sized cocoanut, extending from a point one and one-half inches from

the angle of jaw on the right side to within two and one-half inches of angle of jaw on the left side, which bulged into the floor of his mouth and extended back to the base of the tongue. On digital manipulation, it was firm with the exception of a small area anteriorly, over which crepitation of the thin bony wall was noticed on compression, producing a characteristic crackling sound.

One year ago the growth was opened by a doctor and considerable pus drained out, and it has continued to drain ever since. There was some pain in growth before being opened, but had had no discomfort since. The patient's upper teeth were in fair condition, while those in lower jaw were irregularly arranged and drifting. Several front teeth had been removed. The floor of his mouth was filled with a hard tumor mass.

Family History: Negative.

Past History: Patient a laborer by occupation. Very good habits. Had diseases of childhood. Influenza and pneumonia two years ago, confined to bed for three weeks. Previous history otherwise negative.

Present illness began about six years ago, when patient noticed a small growth the size of a pea connected with the gum of the lower right jaw, he thinks opposite a molar tooth. He had the toothache and upon the advice of a doctor had the tooth extracted. The growth gradually increased in size, so that it was the size of an orange at the end of two years. At the end of four years it was almost as large as the picture shows it now. It has not grown as fast during the past two years as it did at first. Patient otherwise normal.

Laboratory Report: Urine, normal. Blood picture: Red, 4,800,000; whites, 7,400. Wassermann, negative. Blood pressure, S. 118, D. 68.

REMARKS.

A dentigerous cyst has for its nucleus a tooth or teeth. In order of frequency, molars are first involved, followed by cuspids and bicuspids. Any tooth, however, may be the nucleus of a dentigerous cyst. They are slow in developing and sometimes attain enormous size.

Dentigerous cysts seldom contain pus or cause pain. They may occur at any age, but more frequently in youth, rarely appearing after the thirtieth year.

The absence of any permanent teeth suggests that the absent tooth may be the cause of the cyst.

X-ray is the most reliable means of making a positive and accurate diagnosis. The x-ray pictures were made by Dr. Shoulders. They are most excellent and clearly outline the cause of the cyst and the location of the disturbing element, an incisor tooth easily demonstrated on the x-ray plate.

Surgical Procedure: Due to the size of the growth, it could not be removed intraorally, but was dealt with through an incision along the lower margin of the jaw. The superfluous bone shell and septa between the cavities were chiseled and curetted away until the chin was apparently normal in appearance and size. At operation the cyst was found to consist of seven cavities filled with fluid. The tooth, as shown on the x-ray plate, was removed from one of these cavities, hence, the confirming of a diagnosis made from the x-ray plate of a "multilocular dentigerous cyst of the mandible."

It is very essential to avoid errors in the diagnosis of this condition. Too frequently cysts have been regarded as malignant growths and extensive operations have been made, involving the removal of large sections of normal bone, a step which is wholly unnecessary and positively detrimental to the well-being of the patient, since the deformity following can never be overcome. Again, the surgeon taking the view that the malady is malignant, may unnecessarily defer operation until the entire bone is riddled and destroyed by pressure from the growth to such an extent that the process of repair following operation cannot restore the normal contour of the face.

Bloodgood, in his article on "Bone Tumors," *Annals of Surgery*, April, 1919, stresses the importance of both surgeon and pathologist recognizing the character of growth at the exploratory operation. When it is recognized, and its benignity accepted, there



undoubtedly will be more easily subjected to curetting and resection will be less frequently done.

LETHARGICA ENCEPHALITIS.

By Carrol C. Turner, M. D.,
Memphis.

Family History.—Negative, as far as could be ascertained. Patient has six or seven children, all living and in good health. Wife is living, in good health, and no history of miscarriages.

Past History.—Born in Alabama. Age, about 60 years. Occupation, railroad mechanic and carpenter, Southern Railroad, Tusumbia, Ala. Drinks occasionally; has been a heavy user of alcoholic beverages. Has used tobacco in the past. Drinks tea and coffee moderately. Has always been a very healthy man up until the present illness. No history previous to present illness of polyuria nocturia, painful or burning urination.

Medical.—Typhoid fever twenty years ago, no complications. Usual diseases of childhood.

Surgical.—Left inguinal hernia; no operation; no injury. One year ago was thrown from a buggy; no history of unconsciousness; no laceration or contusion about head.

Venereal.—Denies having had gonorrhoea or syphilis.

Present History.—Began in March with fever, malaise and some vertigo, which persisted. Patient had intermittent fever for three days, after which temperature fell to normal but rose daily every afternoon. Patient gives history of some sort of eruption two or three days after fever began. This eruption was limited to armpits, axilla, trunk and inner thighs. No affection in mouth. No blisters or pustules found. After onset patient began to complain of double vision. The vertigo continued and patient felt that he was staggering to the left side. Appetite remained fairly good up to one week ago. Patient has complained since onset of trouble of drowsiness, lethargy and indifference to everything. He has always been a hard laborer and a consistent worker, but with the increasing symptoms of the present disease he has shown more and more indifference to his former occupation.

Physical Examination.—Adult; male; well developed; well nourished. Weight about 170 pounds. Height about 5 feet 11 inches. Patient lies in bed in profound lethargy from which he is aroused with difficulty by shaking and loud talking. He is intelligent, understanding all questions asked him, and answers them coherently. His articulation is lazy and thick. Respiration hard and labored.

Head.—Normal in size and contour. No signs of old lacerations, trauma or any depression of the skull.

Facies.—Passive expression. No paralysis.

Eyes.—There is a suggestion of left internal strabismus. This could not be determined on account of the patient's failure to co-ordinate directions given by the examiner. The left pupil is dilated and reacts sluggishly to light. Right pupil is normal. Both conjunctivae are injected. Eye grounds: These are entirely normal, showing no oedema of either disk. No retinal hemorrhages; retinal ar-

teries somewhat sclerosed and retinal veins not distended.

Mouth.—The tongue protrudes in the middle line without tremor. The tongue has a pale, grayish coat, and is moist. The teeth and lips show some presence of sordes. Pharynx, normal.

Neck.—Normal in contour. No abnormal pulsations. No tumor masses or palpable glands.

Chest.—Expansion, bilaterally, equal. Normal thoracic resonance and tactile fremitus throughout. The breath sounds are exaggerated and harsh over both bases, but are not accompanied by rales or increased vocal resonance. Heart, normal throughout; no enlargement; no thrills, no murmurs.

Abdomen.—Shows no distension or fixation, abdominal breathing being present. No abnormal pulsation. It feels soft and relaxed. No areas of tenderness. Spleen and liver not palpable. No other tumor masses felt and no evidence of rose spots.

External Genitalia.—Normal. Right internal ring is patulous and dilated.

Extremities.—No atrophy. No contractions. No paralyses. Sensation is normal to touch, pain, heat and cold.

Reflexes.—Romberg's sign, absent. Patient does the heel-knee, finger-nose, and finger-finger tests without trouble. Abdominal reflexes normal and equal. Cremasteric reflexes normal and equal. Knee jerk present and shows no exaggeration. Oppenheim's sign, absent; Gordon-Craddock's sign, absent. Babinski's sign, absent. He has no ankle clonus.

Urine.—July 15, 1920: Clear; amber; specific gravity 1018; reaction, acid; albumen, faint trace. Sugar, none. Microscopic examination shows pus cells, squamous, epithelial, and a few hyaline casts.

Blood count, W. B. C. 12,500; polys 81; small, 15; large, 4. Wassermann, negative; Widal, negative.

Spinal fluid came out under increased pressure—60 cc. withdrawn. Fluid clear. Cell count 3 globulin, negative. No reduction of sugar. Centrifugal smear shows no bacteria.

Blood pressure 143-90. Temperature 100. Pulse 60. Respiration 26.

Spinal Wassermann, negative.

Colloidal gold curve, normal.

July 17, 1920: Blood count, W. B. C., 9,007; polys 71; small 20; large lymphs 9. Red blood count, 4,180,000. Hemoglobin estimate, 80 per cent. Blood smear shows no abnormalities of red blood cells.

July 17, 1920: Spinal fluid withdrawn under pressure, clear. Appearance normal. Temperature remained 101 until July 17, rising on that day to 103. Pulse elevated to 96 and was much weaker in volume. Examination of urine showed the same findings as before.

July 19, 1920: Temperature took another rise to 104½. This rise continued gradually to 108 degrees at the time of the patient's death.

Treatment.—This consisted of lumbar punctures, administration of urotropin by mouth every three hours, 10 (ten) grains at a dose, and saline purgation.

AUTOPSY.

The patient went to autopsy and the following were the findings:

Dura was normal. There was no evidence of sinus involvement. The spinal fluid was very much increased in amount. The pia mater looked oedematous. On section, all the arteries appeared congested and minute hemorrhages were seen throughout the cerebrum. The lateral ventricles were somewhat dilated and their walls were tough and cut with resistance. The choroidal plexes were much congested, red and oedematous.

Microscopic examination showed enormous engorgement with slight infiltration in the surrounding tissues of red blood cells and leucocytes. These findings were present throughout the brain substance, and were not localized to the floor of the fourth ventricle, or brain stem.

Diagnosis. — Encephalitis hemorrhagic—probably lethargica encephalitis.

BOOK REVIEWS.

DISEASES OF CHILDREN. Presented in two hundred case histories, with an introductory section on the normal development and physical examination of infants and children. By John Lovett Morse, A. M., M. D., Professor of Pediatrics, Harvard Medical School; Visiting

Physician at the Children's Hospital, and Consulting Physician at the Infants' Hospital and at the Floating Hospital, Boston. Third edition. Cloth. Price, \$7.50. Pp. 639, illustrated. Boston: W. M. Leonard, 1920.

This work, published in two former editions as "Case Histories in Pediatrics," is well and favorably known to most pediatricians and many practitioners. In the present edition this volume may properly be said to include (a) a book on the "Normal Child," (b) a book on "Infant Feeding," and (c) a book on "Diseases of Children," so well are these subjects covered. The author has presented in his own clear, concise manner the conditions that confront the practitioner in his everyday work. As a reference work for the active practitioner who wishes a resume of a given condition with the minimum of reading this work cannot be excelled. In the third edition the original has been largely revised and much new matter in diagnosis and treatment has been added. The section on gastro-intestinal diseases has been entirely re-written and numerous additions to the text are noted. To pediatricians this work is a necessity and to the general practitioner it is recommended as a valuable addition to his library.

J. M. L.

THE AFTER TREATMENT OF SURGICAL PATIENTS. By Willard Bartlett, A. M., M. D., F. A. C. S., St. Louis, and Collaborators. Two volumes. C. V. Mosby Company, St. Louis.

In the new two-volume work, "After Treatment of Surgical Patients," Dr. Bartlett and his collaborators have covered this subject in a most thorough, complete and interesting manner. The first volume deals with general subjects, while the second takes up postoperative treatment as applied following operations on the various organs. The whole work is up-to-date and the text is presented in an attractive style. Since the present-day tendency of the surgeon is to center interest in operative technic, oftentimes to the neglect of the after-care of his patients, except to the extent of his "routine," these two volumes should be read with profit by every surgeon, old or young. The house surgeon will find Bartlett's work almost invaluable.

T. D. M.

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee

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DECEMBER, 1920

EDITORIALS

THE MESSAGE OF CHRISTMAS.

In the midst of the almost universal upheaval of the world today all eyes are turned to the starry skies. The wise men of earth, whether of the East or West, are looking to heaven awaiting a sign presaging anew the redemption of the unsaved and suffering world around them.

As never before in the history of creation, since the Star of Bethlehem first broke forth in glory across the midnight sky of Judea, have the hearts of men so cried out for the wisdom and knowledge of truth and the re-establishing of "peace on earth, good will toward men."

And again the message which comes back from the herald angel's song leads, as it ever must and ever will, to the lowly manger and the little child in swaddling clothes who lies therein.

To the "manger"—that is, to the simple, homely, fundamental verities and elemental virtues of human life.

To the "little child"—that is, to the spirit of truth, embodied in Christ, who chose to be born a little human child, rather than to descend miraculously in clouds of glory from on high.

Let those of us who are devoting our lives to the cause of afflicted and suffering humanity renew today our allegiance to the knowledge and service of truth. The attempted substitution of the occult powers of mystery and magic for the more tedious operations of science calls for increased vigilance and co-operation on the part of those of us who must stand or fall by the evangel that man must "know the truth," since only the "truth shall make him free."

The lesson of the first Christmas morning taught the renouncing, not only of the pomp and glory of earthly majesty and power, but of the pagan worship of the flesh and of the devil with all his magic arts and crafts.

Then let us, in all simplicity turning from the brilliant heresies, the vain imaginings and bewildering sophistries of the day, cling more tenaciously to the sure and underlying verities of human existence and welfare.

Let us above all cherish the abiding truth that as the Holy Child of Bethlehem lay in his earth-made cradle, so the "kingdom of heaven" lies not above, nor below, nor beyond our human ken, but with all its divine potentialities for the final redemption of man it sleeps in the heart of each lowly one of us.

A LETTER FROM OUR PRESIDENT.

To the Members of the Tennessee State Medical Association—Gentlemen:

At the last meeting of the State Society in Chattanooga an act was passed by the House of Delegates increasing your dues to the State Medical Association to \$4.00 per annum, beginning with the next calendar year (1921).

This question was thoroughly discussed in the House of Delegates. Some were in favor of an even larger increase, and others less, but \$4.00 was finally agreed upon. This increase was made necessary to enable us to conduct the necessary business of the Association and to keep up the present high standard of our State Journal, and to make the Tennessee State Medical Association as good as the best.

I do not believe any of you would be willing, for the sake of two dollars, to see the efficiency of our state organization impaired and the standing lowered so that we will be the "cheap John" of Southern State Associations.

Our Secretary-Editor, than whom there is none better, none more willing nor efficient, asks nothing for himself in the way of increase in salary, hence it can be nothing of a selfish nature nor a mercenary disposition that prompted him to ask an increase in dues, but rather a most earnest desire to increase the efficiency of the State

Association and to make the Journal for which you hold him responsible one that will be a credit to himself and to the Association of which you are members.

We understand there has been some slight grumbling and dissatisfaction with this step, but we know enough of the great body of physicians in Tennessee to know that they do not want our Association to retrograde. You also know that it is impossible to conduct any business at the same financial outlay at this time that was necessary in pre-war times. Again, everything that is worth while costs money.

Let me just tell a little experience we have in our local society (the Knox County), which, by the way, is beyond doubt the best and the most enthusiastic medical society in the state. Up until one year ago the dues of the Knox County Medical Society were \$5.00 per annum. This was \$2.00 for the state and \$3.00 for our local society. Our Secretary-Treasurer was always behind with his expense account and had at times to advance or borrow money to meet current expenses. The question of raising our dues had been agitated time and again. Some favored it, others opposed it, a very few because they objected to paying more themselves, but thought it would drive others out of the organization. One year ago, after another discussion of the matter, we decided that if we had any members who were too penurious and too "cheesy" to pay a legitimate price for the benefits of an organization which should mean more to them than any other, and wanted to drop out because of an increase in dues that the society would be just as well off without them; that they were dead timber and that their being out would not hurt our society in the least; and that they would be the losers, and not the society. By a unanimous vote our dues were raised to \$10.00 per year, and we are glad to report that we never lost a member by our action. Our society is out of debt, our Secretary has had less trouble collecting dues, and our membership and attendance has markedly increased. Our members are more enthusiastic than ever in the history of our organization.

When we pay a good liberal price for a thing we "sit up and take notice," and feel that we are getting something for our money. Our profession should mean more to us than anything else. There is where we get our living. Those who are conscientious want to keep among the front ranks and want to see our Society as good as the best in the United States.

Do not worry your Secretaries to death by neglecting to pay your dues, but send them in the very first thing on New Year's morning, have the consciousness of knowing you have done your duty, and be thankful and proud that you belong to the great Tennessee State Medical Society.

L. L. SHEDDAN, President.

500 Burwell Bldg., Knoxville, Tenn.

SPECIAL ANNOUNCEMENT.

The State Board of Health, Division of Venereal Disease Control, announces an original lecture and demonstration program for the medical societies of the state, to be conducted during the second and third weeks of January. Dr. Otto Lowy, an experienced syphilographer and dermatologist, who has personally treated in some of the largest hospitals and clinics in the East some 5,000 patients, and who has administered some 30,000 injections of asphenamine, will appear before the medical societies in Johnson City, Knoxville, Harriman, Chattanooga, Tullahoma, Lebanon, Nashville, McKenzie, Jackson, Dyersburg and Memphis, which societies have already decided to invite the societies of the adjoining counties to meet with them on the respective dates.

It is believed that the information and instruction that will be given to the profession of this state as the result of the tour of this expert will be of untold benefit to the interested physicians of the state. It is also announced that the plan, if sufficient interest is manifested and therefore is successful, will be put into effect in other states of the Union.

Tennessee is again setting the example for some of the states in the so-called more progressive sections, and the members of the medical societies are to be congratulated on hav-

ing this extraordinary opportunity for having the most recent scientific and approved principles and methods presented to them.

THE INCREASE IN ANNUAL DUES.

Some of our County Secretaries have sent in rather discouraging reports concerning the attitude of their members in the matter of the increase in annual dues of the state society. But Wilson County, through Dr. W. S. Dotson, Secretary of the Wilson County Medical Society, forwarded the names of practically all of the 1920 members of that society, with four dollars for each man, and with the medical defense assessment for eight of them, on December 1st. Hogs and cattle and corn and all the rest are selling as low in Wilson County as anywhere, and clothes and flour and coal and gasoline cost just as much there as they do elsewhere. Wilson County doctors look prosperous, but we doubt that they are more prosperous than the members of any like group in the state. Wilson County has set a fine example, and the County Secretary, Dr. Dotson, has set a fine example. He was greatly disappointed last year because one other secretary got in his report before he did, but Dotson was first this time, in spite of increased dues.

It is, of course, to be desired that the membership dues of any organization shall be kept down to the minimum figure compatible with successful operation, and this has been done in the Tennessee State Medical Association. We weathered the hard times of 1918 and 1919, and had great hopes of "getting by" in 1920 without having to make any greater demands on members, but continued high costs and constantly growing costs made it impossible to "carry on" with an income based on 1910 conditions and a necessary outlay based on 1920 costs.

This is a critical time with the Tennessee State Medical Association. If we are to operate successfully, we must have more money to pay the cost of operating. There is only one source of increased income open, and that is through the channel of membership dues. The affairs of the Association have been economically administered, and there has been

no bulge in "overhead" except for the increase in the salary of the stenographer and clerical assistant in the office of the Secretary. That salary has been made \$75 instead of \$60.

The cost of printing the Journal was formerly about \$170 a month, but this has gone steadily up, because of greater prices of paper and bigger wages to printers, and higher costs of ink and other essentials in the printing industry, until now we are having to pay from \$320 to \$340 a month for getting out the Journal. In 1919 we succeeded in holding this down to approximately \$220 a month. Printers have advised us that they see no indications of any very great reductions in the near future.

There are very few members in the Association who cannot easily pay the two dollars a year that the House of Delegates saw necessary to add to the membership dues. It is to be hoped that none will desert our old society in this crucial time.

PRESIDENT OF THE SOUTHERN MEDICAL ASSOCIATION.

The honor of the presidency of the Southern Medical Association was conferred upon our fellow Tennessean and our fellow member and worker in the Tennessee State Medical Association, Dr. Jere L. Crook, of Jackson, at the recent meeting of the Southern at Louisville. We are informed, from various and from numerous sources, that the Louisville meeting of our great sectional medical society was the best of them all. It is said that there was a very fine attendance, a very splendid program, and a very intense interest in evidence. The election of the president under such circumstances always receive more thoughtful attention and the real sentiment of the membership of the society concerned is more definitely and clearly expressed. And so we feel safe in saying that Dr. Crook's election to the presidency of the Southern Medical Association was really in the nature of an unusual compliment.

Jere Crook has long been a hard worker in medical societies. He has served his own state medical association as president, as del-

egate to the American Medical Association, and on all sorts of committees. For several years he has been treasurer of the Committee on Medical Defense. In our House of Delegates his counsel has helped to have our ship steered straight and on the right course. Since the organization of the Southern Medical Association Dr. Crook has been active and zealous in its interest. He has won recognition in several of the more exclusive surgical organizations and is a Fellow in the American College of Surgeons.

The Southern Medical Association has come to be one of the really great medical societies of this nation. Its membership embraces several thousand of the very best men in Southern medicine. Its official organ, the Journal, has won for itself a prominent place among medical publications in the country. The scientific work of the organization is of a very high order of excellence, covering, as it does, all the various fields of professional effort. To be the president of this society is indeed an honor which any Southern doctor may well covet, and an honor which we are proud indeed to see conferred upon a Tennessean who has won his spurs by hard work and by real attainment to proficiency in the practice of his profession and by real service in the rank of medical organization.

HEARD BY THE DOCTOR.

The buckeye or the "petrified" Irish potato in the right-hand breeches pocket, the asafetida bag around the neck, the copper wire around the wrist or ankle, and, with certain classes, the "conjur" bag," have all well established reputations of virtue in the cure and prevention of disease in various sections. The quaint sayings and beliefs that come to the hearing or knowledge of the physician who does a general practice are numerous and, sometimes, amusing in the extreme. One of our good friends has whiled away half an hour in the comfort of his chimney corner by writing out for us some of the funny things he has heard and has described some of the superstitions that have come under his observation as he has gone about his daily work which has taken him into all sorts of homes

and all sorts of places. We feel that our readers will get some pleasure and amusement from reading Dr. Caldwell's letter to the Journal, which appears below:

"The writer has often been amused, and knows that others who have engaged in a rural or general city practice have been also amused many times by the quaint sayings, heard most largely among the poor and ignorant classes, which have come to their ears from time to time in their daily work. While sitting by my comfortable fireside tonight a few of these have come into my mind, and I am jotting them down for you to use as a 'space filler' if you are so disposed. Perhaps others may feel inclined to add their contributions of like nature, and we may all derive some passing pleasure from their perusal in subsequent numbers of the Journal. 'Damp-phule Sayings and Doings Heard and Seen by the Doctor' would be an appropriate heading.

"I suspect that most of us have been called to a patient burned about the head to be met with the question, from an anxious relative or interested friend of the patient, 'Doctor, do you reckon he swallowed the fire?'

"And, again in the case of a burn, some of us have been told, when we have gone to render service and to apply treatment, 'Mrs. So and So is the best woman I ever saw to blow the fire out of a burn.'

"Have you ever been told, as I have more than once, when trying to elicit symptoms and inquiring as to the character of sensations, 'Ain't got no pain, it's just a hurtin'?'

"Many of the quaint sayings we hear, and many of the superstitions extant are referred to obstetrical conditions, and to the mother and the new-born babe. For instance, there is the widespread belief to the effect that the climax of pregnancy will come about or terminate in the one or the other phase of the moon.

"I have been frequently appealed to by relatives or friends of some of my pregnant patients, 'Doc, for Gawd's sake don't let her eat no fish, 'cause it'll kill her as dead as four o'clock!'

"And sometimes when the placenta and membranes are a little slow to come away,

some bystanding woman will ask, 'Doctor, do you reckon it's growed to her side?'

"And when, about the fourth day, you go to see how the new baby is getting along and find its breasts swollen and almost abscessed, your inquiry secures the information from grandma or aunt, 'I jest squeez the milk out of its little breasts to keep 'em from risin'."

"The Irish potato, what a potent remedy it is! Let any untoward condition of the eye develop, from simple conjunctivitis to glaucoma, and the chances are that grandma will serape an Irish potato and make a poultice for it. If the victim is a very young baby, she will 'drap jest a few draps of warm breast milk' into the eye.

"When it comes to the circumeision of the baby the operation will not be permitted unless the Zodiae sign is right. You will be referred to a picture in the back of the almanac of a heroic figure with the anterior abdominal wall sectioned off, convolutions of intestines much in evidence, with bulls, rams, lions, balances, scorpions, fishes, goats, etc., standing guard at various tangents. When the sign gets to the knees, going down towards Pisces—fishes, feet—the right and proper time for circumeision is at hand. I presume they are right 'bout it, for if there is anything that will bring about frequent and copious pisces, circumeision is it.

"If baby, dressed too heavily, develops 'prickly heat' or any other cutaneous manifestation, or if it jumps somewhat in its sleep before its nervous equilibrium is fairly established, 'It's got the hives, Doc, and if it turns into the bowl hives it's shore to die.'

"And if the infant fails to urinate in the nurse's face at least once during the first twenty-four hours of its young life, unless the doctor sternly forbids that kid is almost sure to get a copious dose of 'watermelon seed tea.' And all too often he'll get it in spite of 'Doc's' admonitions.

"The standard remedies which will be pressed upon you for use in the case of 'eaked breast' are axle grease, batter cake poultice, cow poultice, sorghum poultice, and internal administration of that famous decoction commonly known as 'sheep tea.'

"You will frequently be entreated to sane-

tion the use of a tub of water under the bed for preventing night sweats.

"The fame of the yarn string, or the brass or copper wire around the wrist or ankle, and the pants pocket buckeye for 'keepin' off' the rheumatism has certainly been proclaimed to you many, many times if you have done an extensive general praetice, and the frequency with which you have encountered the presence of those potent charms must have made your faith in the salicylates waver just a little.

"One who has been so unfortunate as to have to do a considerable praetice among the colored race will easily give the palm to 'a pain in my side' as the top-notch leader of the whole list of ailments complained of in a negro settlement. 'Doctor, I's got a pain in my side,' is an expression descriptive of an ailment that is sporadic, endemic, epidemic and pandemic among the female colored population. From my observation with respect to the prevalence of gonorrheal tubes among the complainers of 'pain in the side' I am convinced that there are good grounds for the frequency with which such complaints are head.

"The 'yallow ganders' is a favorite lay diagnosis among a very large element of the general population which all of us have had made for us many times.

"And when you are about to lose a patient over whom you have labored in vain and have explained to the family that the case is hopeless and the end is a matter of a few short hours, shall you cuss, laugh or say 'Yes,' when some member of the family propounds, in most solemn, awe-stricken voice, the old, old question, 'Doctor, do you think **inflammation** has already set in?'

"But we can stand for a lot from the laity, forgiving much and remembering the rest in amusement. There is, however, a term, without meaning and without sense, in general use among the people for which a certain element of the profession is responsible, both for its origin and for its continued use. That element of the profession is made up of certain pompons, double-dyed, emblazoned, farcical misnomers and accidents who are frequently called in "on us" and who attribute

every death of sudden occurrence, whether from disease of the coronary arteries, cerebral hemorrhage, dilatation of the heart, ruptured aneurism or what not, to 'Ac-ute indigestion,' thereby branding themselves in the view of sensible doctors as darned fools who had no conception of the real cause of death in such cases. There is 'no sich animule' as ac-ute indigestion, in the sense in which this term is used so frequently in setting out the cause of sudden demise.

"L. J. CALDWELL."

PHILANDER DAVIS SIMS.

Dr. Philander Davis Sims was born in Jackson County, now Putnam County, Tenn., and died Monday, November 8, 1920. October 22, 1920, was his ninety-second birthday, he having been born in 1828. He settled in Chattanooga on June 1, 1856, and was married in 1857 to Miss Mary F. Randall, of Nashville. He was elected an honorary member of the Chattanooga Academy of Medicine on July 7, 1905, and has been continued as such ever since. He was appointed Contagious Disease Physician of Chattanooga in 1911, and on October 22, 1912, the Academy called in a body at his home and presented to him a beautiful bouquet of flowers, and flowers have been sent to him on other occasions, the last being on his ninety-second anniversary.

A committee has been appointed from the local profession consisting of Drs. B. F. Travis, B. S. Wert, E. B. Wise, Y. L. Abernathy and Frank Trester Smith to confer with committees from other civic organizations to make provisions to erect a memorial to the memory of Dr. Sims.

A memorial meeting was held by the Chattanooga Academy of Medicine on November 12, and many beautiful tributes were paid to his memory.

The following resolutions were adopted:

"The medical fraternity has honored itself by honoring Dr. Sims for more than half a century. It is with profound sorrow we pay this last tribute of love to his memory. It is pleasing to reflect that we did not wait to place flowers upon his silent casket, but remembered to do so on various occasions of

his birth anniversaries, going in a body to deliver them and cheer him on his way and assure him of our great respect and love.

"He was a graduate of the University of Nashville, March 1, 1856, and began his career in Chattanooga in June of that year. He did an active practice for about sixty years. He filled many official positions professionally and otherwise, always with efficiency, fidelity and devotion to duty. He was the genuine hero of many battles against deadly epidemic diseases, which is heroism of a higher and nobler quality than that displayed upon a battle field, 'mid the tempestuous roar and tumult, and tragic thrilling episodes of glorious war. When death and pestilence, grim and gaunt, stalked silently forth to find their prey, hideous phantoms to harrow and haunt with woe and despair to wreck and slay, HE WAS THERE. The profession shares in the glory and delight in giving him due credit and honor.

"He was ever prominent in promoting enterprises for the uplift and benefit of society as well as his beloved profession, and played a conspicuous part in the development of a great city from the village he found in 1856.

"He was a true gentleman of the old-fashioned southern type; was kind, courteous, ethical, chivalrous, of lovable character; was temperate in all habits, which no doubt contributed largely to his extreme longevity, which teaches an important lesson.

"He was a 'grand old man,' a benefactor of the race, and the world is better by his having lived. His whole life is a benediction and worthy of the greatest emulation, and in his death we have suffered an irreparable loss; therefore,

"Be it resolved, that we deplore his departure and mourn his loss and extend to the bereaved relations and friends our deepest sympathy and condolence.

"Our sorrow is mitigated in the contemplation that as a true follower of our Saviour he practiced His attributes 'and went about doing good.' He was the highest type of a true Christian gentleman. Our loss is his gain and we have a happy assurance that he will receive a glorious reward. Of him it might be said—

He lived in a house by the side of the road, where
the world of men go by,
The men who are good, the men who are bad, as
good and as bad as I.
He would not sit in the scorners' seat, nor hurl
the cynic's ban:
He lived in a house by the side of the road, and
was a friend to man.

Respectfully submitted: Dr. Y. L. Abernathy, Chairman; Drs. E. B. Wise, T. E. Abernathy, B. S. Wert, Jno. B. Steele, George R. West, B. F. Travis, Committee.

MISCELLANEOUS

FRESHLY PREPARED VACCINE IN THE PROPHYLAXIS OF PERTUSSIS.

From January 1 to October 1, 1920, 6,602 cases of whooping cough were reported to the New York City Department of Health. From January 1 to October 1, 1919, 827 cases were reported. This means that there have been practically eight times as many cases recorded this year as last year. Thus far, 550 deaths have been reported, almost as many as the sum total of cases reported last year.

The mortality from whooping cough ranks second only to that from diphtheria, among the contagious diseases. Of the total deaths from whooping cough, 95 to 97 per cent occur under 5 years of age.

We have still to find a cure for whooping cough. The only remedies we know, at present, are palliative, and these are not very efficacious. Our hope lies in the discovery of a specific vaccine or serum.

In regard to serum, none of practical value has been offered to date.

In regard to the vaccine in use, present claims offer conflicting evidence. Many clinicians, from practical experience, laud its value. Others, with different results, doubt it. The tendency among some clinicians is to use a so-called "mixed vaccine," which contains, besides the bacilli of pertussis, those of other respiratory diseases. They claim results from this not obtainable with a vaccine made of the unmixed Bordet-Gengou bacillus (pertussis bacillus).

Research investigators are rather inclined to doubt peculiar therapeutic value of any

variety of vaccine given after a disease has already developed. They are more inclined to believe that whatever good is obtained is not specific but due to reaction to protein shock. Many of them are quite skeptical in regard to the virtue of whooping cough vaccine in spite of the fact that the Bordet-Gengou bacillus develops large amounts of immune bodies in laboratory animals. The clinical evidence collected by the New York City Department of Health in 1916, in its whooping cough clinics, did not show convincing proof of its value, in the dosage given. Although the Department still prepares and dispenses pertussis vaccine, it will not urge its use for treatment until its therapeutic value is definitely established. However, if it does not help, it certainly does not do harm.

Prophylactically, the Department feels that the vaccine may have much value. Where it has been given to groups of children in institutions, it apparently has proved efficient in limiting the spread of the disease. Unfortunately, when prophylactic inoculations are given in institutions, they usually are begun during an epidemic. This is not a fair test of the vaccine, as some of the children are already infected and in the incubation stage of the disease. It takes, at least, from two to four weeks to develop a large amount of immune bodies with a vaccine, so that cases of the disease that break out before four weeks after the vaccine is administered should not be counted among failures. The ideal method of preventive vaccination is to give the vaccine sufficiently long enough in advance to be fairly certain that the greatest possible immunity is brought about. There will always be, undoubtedly, some small per cent of persons who do not make immune bodies readily. As a known example, we have the 5 per cent of failures of a single course of toxin-antitoxin injection against diphtheria. Unhappily, we have no practical method, at present, for testing immunity against pertussis, as we have in the use of the Schick test in regard to diphtheria.

Recently competent authorities have presented evidence, by immunity tests and clinical experience, that pertussis vaccine, freshly prepared and given in larger doses than formerly is more potent. In a report of cases in

his private practice, about to appear in the Medical Record, Dr. R. G. Freeman shows 68 per cent of successes in the treatment of pertussis, and 40 per cent in prophylaxis. His cases, to be sure, are few in number, but they are suggestive and point to the importance of further trial. His dosage is somewhat smaller than that advocated by the Department of Health. Our recommendation is that 2,000 millions be given at the first dose, and 4,000 millions for the second and third doses, for prophylactic purposes.

In the light of this experience and the much higher prevalence of whooping cough this year, and the probability of its further extension, the Department urges the prophylactic inoculation of children, and especially of children living in institutions where exposure to whooping cough is inevitable. A stitch in time saves nine, and small doses of pertussis vaccine may mean the saving of many lives. The reaction of the vaccine is negligible.

The Department has taken measures to have fresh vaccine always available.—Bulletin New York City Department of Health.

BOOK REVIEWS.

SIMPLIFIED INFANT FEEDING. With eighty illustrative cases. By Roger H. Dennett, B. S., M. D., Associate Professor of Diseases of Children, New York Post-Graduate Medical School; Attending Physician of the Children's Department, New York Post-Graduate Hospital; Assistant Attending Physician at the Willard Parker Hospital; Pediatricist to the New York Lying-in Hospital. Second edition. Cloth. Pp. 385, with 14 illustrations. Philadelphia: J. B. Lippincott Company, 1920.

During the past few years the use of simple dilutions of cow's milk, water and sugar has proven quite popular in infant feeding, and the use of boiled milk in these dilutions meets with less opposition than formerly. The author of this work advocates this feeding, checking up his formulae by the caloric method. The plan is simple and practical and if followed closely will be found applicable to a majority of babies. A full discussion on the management of breast feeding is given

and a close application of the lessons taught in this section will go far towards decreasing infant mortality. Valuable additions to the first edition are the chapters on "Acidosis," "Dry Milk," and "Salts of Milk." The author has revised his original classification of diarrheas and their treatment in bottle fed infants, thereby making a distinct improvement over the first edition. The book is further improved by a rearrangement of the subject matter. The case histories are a valuable feature of this work, and the number in the second edition has been increased. Pediatricians will find much of merit in a perusal of the pages of this work, and the busy practitioner who finds little time for reading will be able to obtain practical suggestions that are not clouded with expositions of theory.

J. M. L.

PRACTICAL PREVENTIVE MEDICINE. By Mark F. Boyd, M. D., C. P. H., Professor of Bacteriology and Preventive Medicine in the Medical Department, University of Texas. 352 pages, with 135 illustrations. W. B. Saunders Company, Philadelphia, 1920. Cloth, \$4.00.

"The medical profession can play an important role in the field of preventive medicine and public health. At present physicians are neglecting their opportunities. If this neglect continues the opportunities will lessen and the field will be taken away from physicians by a changing public sentiment. If these pages will bring home to medical students and practitioners a realization of their public health responsibilities and stimulate co-operation with public health authorities, the labor of their preparation will have been abundantly rewarded." In the above quoted words Dr. Boyd sets out his reasons for the preparation of this little volume, which he presents as a compilation of the "salient features of modern preventive medicine" and which he believes represents the minimum knowledge of the subject which the student of medicine or the practicing physician should have. The author has condensed a great deal of valuable information into a comparatively small book. There is some question in the mind of your reviewer as to whether there has not been too much con-

densation in some of the chapters to make them of much real value. However, a great many references are given to more pretentious works and to many individual publications in scientific journals and government papers. The general arrangement of subject matter is good, but it appears to us that some of the subjects treated are given rather more than a fair share of space in comparison to that devoted to other subjects of greater relative importance. There can be no doubt but that the medical student or the doctor who gathers to himself the information contained in this book, which is given by the writer as the minimum information that should be had, will find himself far better able to serve his community. To that end there is abundant justification for Dr. Boyd's work, which can be studied with profit by any physician.

DIAGNOSIS AND TREATMENT OF BRAIN INJURIES. With and Without Fracture of the Skull. By Wm. Sharpe, Professor of Neurologic Surgery, New York Polyclinic Medical School and Hospital, Consulting Neurologic Surgeon to various New York hospitals. Illustrated. J. B. Lippincott Company, Philadelphia.

Dr. Wm. Sharpe, author of the book under review, will be very pleasantly remembered by some four hundred of the members of the Tennessee State Medical Association who heard him deliver a splendid address on brain surgery at the meeting of the Association at Memphis some two or three years ago. There are few fields in medicine or surgery in which such splendid advances have been made with respect to diagnosis and treatment as have been made concerning conditions affecting the contents of the cranial cavity. As was emphasized by Dr. Sharpe in his address at Memphis, and as he has very forcibly brought out in the volume under review, in the matter of the treatment of cranial injuries, it is not so much now a question, as formerly was thought to be, of the presence or absence of a fracture of the skull, but rather the question of the presence or absence of a real hurt to the brain and, as is especially emphasized by him, the presence or absence of intracranial pressure. These are the fundamental considerations

with which Dr. Sharpe starts and on which he builds his very fine discussion presented in this book.

The subject matter is presented in three parts: (1) "Recent Advances in the Diagnosis and Treatment of Brain Injuries" (nine chapters); (2) "Acute and Chronic Brain Injuries in Adults" (three chapters); (3) "Acute and Chronic Brain Injuries in New-born Babies and in Children" (with illustrative cases; two chapters). A great many individual cases are very fully presented in illustrating and enlarging upon various important points brought out, and in this feature of the book is to be found one of its strongest claims as a very valuable work. The part devoted to acute and chronic brain injuries of newborn babies and children will probably appeal most strongly to the general practitioner, as, of course, it will to the pediatrician. This part of the book is well illustrated and is full of reports of individual cases which add greatly to its informative value. Dr. Sharpe has very firm and definite convictions concerning the treatment of brain injuries, both as to the employment of radical surgical methods and as to the employment of expectant methods, and his views are very clearly and very comprehensively set out in his book. The results secured by him in his very extensive experience, which are fairly given in the case reports, conclusively demonstrate the correctness of his teachings with respect to treatment. He is conservative even to the point of being radical in the extreme, by which we mean that he does not hesitate to employ expectant methods where many others would result to immediate operative procedures.

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DYSMENORRHEA.

By Jesse J. Cullings, LL. B., M. D.
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Memphis.

Dysmenorrhea, or painful menstruation, is of such frequent occurrence that it deserves a great deal more study than it has received in the past. Ernest Herman estimates that only forty per cent of women menstruate without pain, and that ten to twenty per cent of unmarried women are bedridden with pain during a part or all of the menstrual period. And Mary P. Jaebö, in 1878, in her essay concerning rest during menstruation, stated that forty-six per cent of women suffer more or less during the menstrual period, and that humanity requires that such women should be permitted to rest in bed during the pain.

The term dysmenorrhea should be reserved for menstrual pain of sufficient severity to cause the woman to seek relief. It should not be applied to that sense of fullness and slight discomfort felt in the pelvis and mild backache experienced by practically all women at the menstrual menses.

The time at which the pain occurs in reference to the flow varies; it may be premenstrual ending with the beginning of the flow; may begin with the appearance of the flow and last one day or until the flow is well established, or may last throughout the period. Pelvic pain occurring between the periods, to which the German school have given the name of "mitelschmerz," is not to be classed as true dysmenorrhea.

The type of the pain also varies. It may be

continuous and of an achy character or intermittent and colicky in character, the former due to tension while the latter is due to muscular contractions. Frequently both types are present in the same case.

The location of the pain may be referred to the hypogastrium or to either or both iliac regions; may radiate to the vagina, back, or down the thighs. Intense headache is a frequent associate of dysmenorrhea.

In judging the severity of the pain experienced by the patient in dysmenorrhea, there enters a large personal element; some bear pain with more fortitude than others. A woman of stable nervous system may be only slightly indisposed by an attack of dysmenorrhea, that would place one of untenable nervous system in bed. We often obtain a history of the attacks getting more severe each month and the question of frequency arises. Are the attacks increasing in severity, or is a stable nervous system losing its stability through the constant anticipation and monthly occurrence of pain?

Two debatable questions of more or less interest in our study should be mentioned, viz: Do the muscle fibres of the uterus form a sphincter at the os? It has so been taught in the past, and even at the present time this teaching is held by the majority of our textbook writers; one, however, Sturmdorf, in no uncertain terms, maintains that it does not exist. He believes that the uterine muscle fibres are arranged in a spiral manner, in no place entirely encircling the cervix, and that when the fibres of the uterine body contract they open the os, acting after the manner of an iris diaphragm of a microscope. Personally I am inclined to accept Sturmdorf's view on the subject.

The second question is as to whether or not the uterus contracts during normal menstruation. Borney and Berkley declare that uterine contractions never take place in normal menstruation. The large majority of authors agree that it does and Sturmdorf goes a step further by stating that uterine contractions not only occur at the menstruation but also between the periods—that these contractions are necessary to maintain the nutrition of the uterine musculature and prevent disuse atrophy. The latter author is a very convincing writer and makes no effort to stick to the beaten paths. His little work entitled “Gynoplastice Technology” is full of new thoughts by a thinker.

Dysmenorrhea has such a varied *étiology* that a satisfactory classification along this line is difficult. Thus we find in the current works on gynecology a marked similarity in their classification; each apparently recognizing the deficiency of the others, and attempting to remedy it by a shade of difference, but with no appreciable improvement. If we are to make any progress in the study of dysmenorrhea, we had best leave off the attempt to classify according to *etiology* and forget the old terms that have long outlined their usefulness, viz: Congestive, neuralgic, obstructive, spasmodic, ovarian, tubal, uterine and nervous dysmenorrhea.

W. Blair Bell in his classification has made a long stride in advance of his contemporary writers, by casting aside the old terms and approaching a classification from a pathological standpoint. In the further discussion of the subject we can do no better than to adopt Bell's classification.

1. Dysmenorrhea due to anomalies of structure: These anomalies are developmental and result from arrested development either during foetal life or from birth to puberty. We have:

- (a) Under-developed uterus of normal shape.
- (b) Under-developed uterus with acute flexion.
- (c) Fully developed uterus with acute flexion.
- (d) Gross malformations of the uterus.

(a) **Under-Developed Uterus of Normal Shape.**—In some of these cases there is not dysmenorrhea, only scanty menstruation. In

others the pain is severe, being of both types, *aehy* and *colicky*, and present only during the flow. The explanation of the cause of the pain is to be had in probably two ways; first, by irregular contractions of a uterus whose musculature is poorly developed, and largely substituted by fibrous tissue; and second, by the resistance offered by a compact and fibrous endometrium usually found in these cases. The former give rise to the *colicky* type and the latter the *tension* type of pain, the latter intensifying the former by acting as an irritant to the uterine wall, and setting up more frequent and violent contraction waves. The result of treatment of these cases can never be foretold. Dilation and curettment give, if any, only temporary relief. When any relief is obtained by this means, it is probable that the dilation acts by rupturing some of the muscular and nervous fibres—thus lessening the musculature's ability to contract as well as lessening the transmission of these contractions to the central nervous system, as pain. The curettage, by removing the old fibrinous mucosa, stimulates the uterus to the production of a new and better one.

Effort should be made to improve the development of the uterus. If the patient is over the age of twenty, this will probably be impossible. If under this age it is possible that by suitable treatment a great deal may be accomplished in further development. A study of the case should be made to determine if there exists a deficiency of the thyroid or pituitary secretion; in the latter the testing of the carbohydrate tolerance and a radiogram of the sella tureica may be of value. Should a deficiency be discovered in either gland, the appropriate treatment is the giving of the animal extracts of that gland. The cases most amenable to treatment are those with a thyroid deficiency; and, even if the patient has passed the age at which improved development is to be expected, relief from pain is often secured by the administration of thyroid. Whether the ovaries are ever primarily at fault in these cases is doubtful. While it is true that in underdeveloped ovaries, there is a deficiency of ovarian secretion, the underdeveloped ovaries as well as the uterus are due to lack of secretion from one

of the other endocrinetic glands. Ovarian products given alone have no results, but if combined with other glandular extracts give the best results. In cases having a thyroid deficiency a high protein diet is to be recommended; as nitrogenous foods are supposed to stimulate the thyroid gland. A large number of these cases are sterile but those that become pregnant are cured. This is brought about by the improvement in the quality, quantity and nutrition of the musculature.

(b) Under-developed Uterus With Acute Flexion (Cochleate Uterus).—All that has been said of the under-developed uterus of normal shape applies to these cases, but, besides having, like the former, a poorly developed uterine musculature and a fibroid endometrium, we have a kink which probably blocks the contraction waves and thus intensifies the pain. It was formerly believed that this flexion or kink caused pain by offering obstruction to the outflow of menstrual blood, but this view is no longer tenable. It has been shown that though the uterus be acutely flexed the uterine cavity makes the bend in a gentle curve.

Microscopic examination of the concave wall of the uterus at the kink shows that the muscular fibres are very irregularly disposed, there being a marked interlacing of muscular and fibrous tissue. The convex wall has a more orderly arrangement. This type gives one of the most severe dysmenorrheas with which we have to deal, rivaling in severity exfoliative dysmenorrhea. Effort should be made, as in the previous class, to improve the development of the uterus, and in addition hysterotomy, anterior in the ante flexion and posterior in the retroflexion (rare), may be performed. This operation should be reserved for the cases where there is no doubt that pregnancy will never occur. A large majority of these cases are sterile.

(c) Fully Developed Uterus With Acute Flexion.—The dysmenorrhea in these cases is usually not so severe as in those of under-developed uterus with acute flexion. The pain is probably due to the blocking of muscular contraction waves at the sight of the flexion. As dilatation and curettage will give temporary relief and marriage with conception will

cure, these cases should be temporized. Dilatation and curettement should be resorted to just before marriage and that most frequent cause of sterility, endocervicitis, should be combatted, if present.

(d) Gross Malformations of the Uterus.—Where the malformations of the Muellerian tract is not so marked as to produce amenorrhea, the patient frequently suffers from dysmenorrhea. We have the following to consider:

1. Bicornute Uteri.—When the uterus is irregularly bicornute the incompletely-developed horn may give rise to dysmenorrhea in two ways; viz: In the same way as the normally shaped under-developed uterus; or the outlet to the badly developed horn may be stenosed and pain be produced by retention of the menstrual fluid—a true obstructive dysmenorrhea. The treatment is surgical, consisting of the removal of the poorly developed horn, if possible, without disturbing the normally functioning horn, as not infrequently pregnancy takes place in the latter.

2. Conical Cervix With Pin-hole Os.—Dysmenorrhea is not a constant accompaniment of this condition, therefore, the painful menstruation, met in the majority of these cases, cannot be due entirely to the conical cervix and pin-hole os. It probably arises from a combination of circumstances; thus we may find that the body of the uterus is under-developed. Again, if the patient has intra-uterine clotting of blood or exfoliation of the endometrium it stands to reason that the narrow-cervical canal will offer greater resistance to the passage of same than one of normal dimensions. It has also been suggested that the under-developed cervix with a pin-hole os would not soften and dilate at the menstrual period, in the way that the normal one would, and that this might involve the internal os and prevent the usual menstrual relaxation in this situation, and thus cause hindrance to the outflow of the menstrual blood. The acceptance of the last suggestion has, in the past, led to the classification of these cases as obstructive dysmenorrhea. This could only be the case where there was an excessive amount of menstrual blood, a menorrhagia. If we recall that the average menstruation lasts 4 or 5

days, and the average amount of menstrual fluid passed in this time is 4 or 5 oz, which gives us one minim escaping through the os in three minutes, it will at once be apparent that short of complete closure or blockage by a clot, piece or membrane, etc., obstructive dysmenorrhea cannot occur. If we agree with Sturmdorf, that there is no true sphincter at cervix, but instead, the contraction waves passing over the spirally arranged muscle fibres open it like an "iris diaphragm;" it is possible that the pain in these cases is caused by the regular contraction waves starting in the normally developed musculature of the corpus uteri—becoming irregular when they enter the poorly developed portions of the fibres in the cervix.

The treatment consists in giving temporary relief by dilation and curettage or permanent relief by one of the plastic operations of splitting the cervix.

2nd. Dysmenorrhea Due to Physiological Anomalies—Under this head we have:

(a) Intra-uterine clotting of menstrual blood.

(b) Exfoliation of the Endometrium.

(c) Painful ovulation.

(a) **Intra-uterine Clotting of Menstrual Blood**—Whether or not the normal menstrual blood clots in the uterine cavity is a question still in debate. Blair Bell states that it does not clot owing to the destruction or abstraction of the formed fibrin ferment, or its precursors, by the vital processes of the endometrium, and when clotting does occur it is due to abnormal pressure of fibrin ferment. On the other hand B. Whitehouse believes that normally the menstrual blood always coagulates in the uterine cavity, but that the clot, while still in the uterus, is dissolved by a proteolytic ferment (thrombolysin), the product of the secretory activity of the uterine glands. These two authorities, although directly opposite in their contentions, agree that the menstrual blood leaves the uterine cavity as liquid, and that if discharged from the cavity as a clot it is abnormal. Bell's statement is probably the most acceptable; at any rate it is most applicable to clinical findings and treatment. The fact that clots are found in the vagina is not to be taken as *prima facie* evidence that

the clotting occurred in the cavity of the uterus, for the blood, although containing fibrin ferment, may be discharged from the uterus before it has had time to coagulate. However, when clots are found in the vagina, it shows an abnormality. Either the clots were formed in the uterine cavity and extruded into the vagina, or the flow was so excessive that the endometrium, though normal, could not perform the increased amount of work necessary, but the uterus being of normal tone emptied itself before coagulation could occur.

Clotting of blood in the uterine cavity means one or two things; viz: either a diseased endometrium unable to perform its normal function, or too great demand on a normal endometrium, by an excessive flow of blood, menorrhagia, from a uterus of poor tone. There will be no dysmenorrhea unless the blood clots in the uterine cavity and remains clotted at the time the uterus attempts to empty itself. It then acts as a foreign body and obstructs the cervical canal.

The pain is colicky in character and the woman is free from pain, after each clot is discharged, this relief only lasting until another is formed. The cases falling entirely, that is combined with any other cause of dysmenorrhea, within this group are very amenable to treatment. Two effects are to be sought; viz: to lessen the flow, and to increase the tone of the uterine musculature. These go hand in hand, as by increasing the tone we diminish the flow. Any drug causing uterine contraction will increase its muscular tone.

We know that the presence of calcium in the circulating blood is largely responsible for the tone of involuntary muscle. Pituitrin also acts upon involuntary muscle and especially that of the uterus. Calcium lactate one-half drachm in water each night for one week and then every other night and pituitary extract two grains twice daily will very often give marked results.

(b) **Exfoliation of the Endometrium**—During normal menstruation the endometrium is thrown off to a greater or lesser extent, depending upon the individual, but never in organized pieces. There exists a pathological condition, however, in which it comes away in appreciable pieces or as an entire cast of the

uterine cavity. The membrane may consist of the superficial layer only, in which case it is very thin and has a "ground glass" appearance. In other cases the exfoliation is deeper, giving rise to a thick membrane, indistinguishable macroscopically from a membrane of conception. It was formerly held that all of the exfoliations of the endometrium were the result of conception, in other words a decidual abortion, but at present it is known that these membranes have no connection whatever with pregnancy. Due to the similarity in macroscopic appearance it is necessary to make a differential diagnosis microscopically. A competent pathologist can give a correct opinion on the majority of specimens. The cause of this massive exfoliation is not known. Findley holds that there are two types—an inherent type found from puberty on, and an acquired type following an old gonorrheal infection of the endometrium. This condition has been called "exfoliative endometritis" but numerous investigators have been unable to find any evidence of inflammation in the membranes. Membranous dysmenorrhea is frequently intermittent, the patient going several months without an attack. Several observers have found that during the premenstrual stage the stroma cells of the endometrium may swell and become decidual like. This does not occur to the same extent in different individuals and is usually limited to the superficial layer. Where the deeper cells are involved this reaction occurs in patches and is particularly well marked around the blood vessels. This decidual-like reaction of the cells forms a barrier to the passage of sanguineous effusion through the endometrium into the uterine cavity; consequently the blood accumulates behind this barrier and strips off the remaining endometrium in large pieces or wholly intact as a cast.

Exfoliation of the endometrium gives rise to our severest type of dysmenorrhea. The pain is produced by the tension resulting from the accumulation of blood behind the cellular barrier in an effort to reach the uterine cavity, and by the membrane, after being separated from the uterine wall, becoming rolled up into a ball and obstructing the outlet of the uterus the latter giving colicky pain which is

relieved when the membrane is discharged. Bell believes that in many cases the membrane is discharged without becoming rolled up and thus does not give rise to the colicky dysmenorrhea.

Nearly all women suffering from this condition are sterile. However, cases are on record where it only began after the birth of children, and others that have been cured by the birth of children.

Treatment is unsatisfactory. Some cases have been reported as cured by curettement. These are rare and probably belong to Findley's acquired type. There is no specific treatment. If menorrhagia is severe calcium lactate should be given; for if the hemorrhage is checked there is less likelihood of exfoliation; at the same time the uterine muscular tone is increased and the membrane is more likely to be expelled before it becomes rolled up.

There is still another favorable effect of large doses of calcium salts from a decrease in the power of the body cells to imbibe fluid from the serum with which they are bathed, when that serum is rich in calcium salts. Thus the decidual-like reaction in the endometrium may be lessened or prevented.

Thyroid extract may also be given with good results in some cases. It is given with the hope of bringing on the period a few days ahead of time before the decidual-like reaction has had time to develop. When used it should be combined with calcium lactate.

(c) Painful Ovulation.—Ovulation does not necessarily occur at the time of menstruation; but when it does, in some women, it may give rise to pain although the ovaries are apparently normal. These ovaries, although, apparently normal, may show on microscopic examination a thickened tunica albuginea. At the menopause this thickened tunica is a normal occurrence and yet the women suffer no pain. This may be due to the fact that during the menopause ovulation does not occur frequently. The pain is supposed to be the result of the resistance offered to the normal dehiscence of the follicle. The intraovarian tension is then unduly raised and gives rise to pain. A somewhat similar phenomenon occurs when, after dehiscence, hemorrhage into the follicle

is excessive; the acute extravasation of blood into the ovary causes it to rapidly stretch, and results in the formation of a follicular blood cyst. In some cases the blood cyst may rupture, with profuse bleeding into the peritoneal cavity resulting. This rupture sometimes gives rise to severe pain and signs of pelvic peritonitis.

The treatment of painful ovulation is frequently discouraging. Thyroid and ovarian extracts, given empirically, apparently help some cases.

II. Dysmenorrhea Due to Acquired Pathological Lesions:

(a) Constitutional Diseases:

1. Disorders of the Nervous System: Hysteria often and neurasthenia sometimes appear to be responsible for dysmenorrhea. We have no right to deny that these women suffer the pain of which they complain, simply because a pelvic examination reveals no abnormality. It is reasonable to suppose that those intoxications which upset the even balance of the nervous system may also cause irregular and painful contractions of the involuntary muscles, or that normal contractions owing to the unbalanced nervous system may be transmitted as painful, and the sense of fullness and slight discomfort ordinarily felt in the pelvis may become actual pain. This is a difficult subject because of the fact that practically all women suffering from long standing dysmenorrhea are very nervous and if seen at this stage the question to decide is—does the nervous instability cause the dysmenorrhea? or does the dysmenorrhea cause the instability? Most frequently it is the latter.

2. General Toxemias.—Apart from the toxemias which produce the functional nervous disorders, about which we know little, there are other toxemias which may give rise to local changes in the genitalia and occasionally give rise to dysmenorrhea. Rheumatism, syphilis and intestinal intoxication have all received their share of blame.

Rheumatism is supposed to produce a neuralgic condition of the genital organs, which may be accentuated or brought into consciousness by the menstrual period.

Syphilis is thought to produce "fibrous uteri" and thus give rise to menstrual pain.

Intestinal intoxication is said to give rise to sclerosis of the ovaries, and these sclerosed ovaries produce pain at the menstrual congestion. It has been suggested that lead poisoning might give rise to uterine colic just the same as it does intestinal colic.

The treatment of dysmenorrhea due to the general toxemias consists in the treatment of the toxemias.

(b) Local Lesions in the Pelvis—Very commonly gross lesions of the genitalia are accompanied by dysmenorrhea. Infections; acquired displacements, new growths and traumata are to be considered.

1. Infections may involve the ovaries and tubes alone or the ovaries, tubes and uterus. In the former case the pain is apt to be premenstrual, in the latter both premenstrual and menstrual. The pain is produced in different ways according to the location of the lesion. If produced by ovarian involvement it is caused in a similar manner to that of painful ovulation; viz: The thickened tunica albuginea resisting dehiscence. If the result of tubal lesion, the tube being bound down with adhesions, gives rise to a stretching or tearing pain, at the menstrual period, by the pull upon these adhesions in an attempt to adjust itself to the increased blood supply. When the uterine wall is infected there is an infiltration of the perimesial sheaths and an edematous condition of the muscle fibres, all of which lead to loss of tone, menorrhagia and painful contractions of the uterus at the period. As a result of loss of tone and increased hemorrhage we may have the pain of intrauterine clots added. Long standing infection may lead to "fibrous uteri" and thus give dysmenorrhea.

2. Acquired Displacements—Acquired retroflexion is the only displacement of any importance in producing dysmenorrhea. Uncomplicated by tubal and ovarian disease, it is most frequently puerperal in origin. The uterus is subinvolved and the fundus by overlying the ovarian veins causes "back pressure" with resulting passive congestion. In consequence of this the endometrium becomes hypertrophied and edematous.

The pain primarily associated with this condition is due to passive congestion which is very much accentuated at the period and is

premenstrual in time. The passive congestion may cause increased hemorrhage and loss of tone of the musculature, as a result of which we may have associated the dysmenorrhea of intra-uterine clotting. Dysmenorrhea associated with uterine prolapse, which is not usual, is also due to congestion.

3. New Growths—If growths in the ovaries or tubes give rise to menstrual pain they do so usually as a result of adherence to other structures. The only new growths in the uterus giving rise to dysmenorrhea to any degree are fibromyomata. If the tumor is intramural it gives rise to pain by interfering with normal contraction waves and setting up irregular contractions. If the tumor be situated within the uterine cavity, as a submucous polyp, it acts as a foreign body obstructing the outlet and thus produces dysmenorrhea.

4. Traumata—Lacerations of the cervix uncomplicated by endocervicitis would theoretically have a tendency to lessen dysmenorrhea, but unfortunately by far a large majority have an associated endocervicitis from which the infection passes up through the lymphatics and give rise to a chronic metritis, and produce dysmenorrhea. Incision made in the uterus, for a Caesarian operation, may later give rise to dysmenorrhea because of the fibrous tissue produced. This is rather unusual, as the uterus being very vascular, union takes place promptly and leaves very little scar tissue. The older the woman the more apt is she to have dysmenorrhea as a result of this operation.

5. Constipation, aside from the toxemic effect, may give rise to menstrual pain through production of a varicose condition of the left pampiniform plexus and congestion of the ovary by pressure on the left ovarian vein. This is felt in the left ovarian region and is aching in character. The treatment is that of constipation, and especially keeping the bowels loose for several days before the period is expected, or surgically by removing the varicocele. The treatment of the rest of the dysmenorrhea considered under the head of Local Lesions in the Pelvis are surgical and consist of either correcting or removing the lesion.

We have purposely left out of the classifi-

cation that medical curiosity known as "Nasal Dysmenorrhea," described in 1897 by Fliess. It consists of a dysmenorrhea associated with congested spots (genital spots) on the nasal septum and inferior turbinate. Cocainization of these spots relieves and cauterization cures. Findley stated that he believes the procedure irrational and will not stand the test of time.

Little, if anything, has been said in this paper concerning the symptomatic treatment of dysmenorrhea, such as rest in bed, hot sitz bath, aspirin, acetanilid, etc. There is nothing new in this direction. We should carefully avoid opium and its products, because of the danger of habit forming. Every case should not only have repeated examinations, but at intervals a new history should be taken to check against and complete the old, until the underlying pathology is discovered and proper treatment instituted.

THE PHYSICIAN AND HIS RELATION TO THE PUBLIC.*

By W. J. Matthews, M. D.,
Johnson City.

The true physician, in striving to fulfill properly and adequately his real mission in life, must first do all he possibly can to promote his own personal interest, to advance his profession, and alleviate suffering; and second, he must exert his whole influence at all times to promote the best interests of organized society, of which he himself is an important part. It is no less a duty and privilege to work in one of these fields of endeavor than in the other. It is self-evident that he must work for his living; but it is a matter of volition as to whether he will actively interest himself in the welfare of organized society.

The object of this short paper is not to extol the doctor and emphasize the importance of the doctor's work as a practitioner of his profession, great and wonderful as that is, but to call attention to the doctor's opportunities as a man, citizen and leader of

*Read before the Washington County Medical Association.

thought and influence in his community, and to point out briefly some of the ways that the doctor could and should work toward that end. In my opinion, the physician who thinks of rendering so much service for so many dollars, **and that only**, is failing to perform his whole duty to himself, to his profession, or to society. Each individual needs to perfect himself in his own line of special activities, but he also needs to do something that helps to merge his interests and activities with those of organized society as a whole.

The physician, by the nature of his work, is brought into close contact with the appetites, desires and needs of mankind in such a way that he is able to point out safe and efficient ways of acting towards them. He, being a person of developed and trained intelligence, is in a position to point out correct methods of dealing with the problems of organized society.

The first and most pressingly important field of activity open to the physician, outside of his own profession, which is of necessity closely related to it, is the question of public health. It is of interest to every member of society that the health of all the people be maintained at the highest point attainable. The attitude of the medical profession toward public health problems has always been favorable and greatly to its credit, but not much more than a good start has been made.

The general public is usually disposed to regard public health matters as professional and technical in their nature, and of interest chiefly to professional people, whose duty and responsibility it is to look after and remedy them. Needless to say, this is exactly the opposite of what it should be. The medical profession cannot and should not be held wholly and directly responsible for the health of the people; it is essentially a community burden and responsibility. The layman and the physician are both responsible for the prevention of disease and the promotion of the health of the people. The only reason the physician should be considered as more responsible than the layman for the prevention of disease is because he understands the nature and needs of

the work better, and the methods and means of carrying it out. Both the physician and the laity should use their influence toward placing the maintenance of public health and preventive medicine under the direction of trained experts, who are specially trained in this kind of work.

In the promotion of public health, a campaign of education must be constantly maintained, and in this the physician must take the lead and point out the way. At this time no greater opportunity for real service presents itself to the individual physician or the profession as a whole than a campaign of education in the field of public health and preventive medicine. I am convinced that no greater work could be done by our county medical society than to actively engage ourselves in and push the matter of having a fully prepared and thoroughly equipped full-time health officer for Washington County (with all necessary assistants) to have charge of all public health matters in the county.

This would require the expenditure of quite an amount of money, and the people would be slow to take it up at first; but with the proper work and influence in the way of education of the people as to the needs and benefits of the work by the medical profession and progressive citizenship, it would be an accomplished fact in a comparatively short time.

Every dollar spent for the maintenance of health and prevention of disease prevents conditions that involve the expenditure of total loss of much larger amounts. The importance of education and maintenance of efficient public schools is much talked of, and is becoming more and better appreciated by an ever-increasing number of the people. This is quite proper and wise. The work is vastly important, as everyone admits; and yet I call attention to the fact that the public schools are for the direct benefit of only a portion of the people, and that for only a portion of the time, while maintenance of the public health and the prevention of disease is for the benefit of all the people all of the time.

Of the many and varied and important problems involved in the matter of public health, the money needs, and the many fields of activity to be entered, we cannot speak in

doctors themselves, because they do not look this short paper. Suffice it to say here that it is one of the functions of the physician where his responsibility as a citizen as well as a doctor asserts itself, and offers a rich field for his talents and ability.

The physician should cultivate a disposition for sociability and good fellowship, not for selfish, professional reasons, although it may be helpful in a professional way, but because man, being essentially a social creature, the physician can be helpful both to himself and others by cultivating a sociable and friendly disposition toward those with whom he may come in contact. The old adage that "he who would have friends must show himself friendly" has a wide field of application and should receive serious consideration by the majority of us. It is not necessary to gush or pretend, but to try to cultivate a real liking for people and things which concern them. It is an assured fact that we gain the esteem and friendship of others if we are interested in them and theirs. A kindly word of inquiry or friendly concern about the ordinary affairs of those about us will often lay the foundations for deep and abiding friendship. Sorrow and calamity draw us together in the bonds of common sympathy, but it should not be necessary to have those things to promote friendship and friendly interest in each other.

The physician should be interested in things that are of importance and great concern to society and the community at large. Such questions as education in all its branches, temperance, morality, social welfare of all the people, better conditions for the poorer classes and laboring classes, especially women and children who must work for a living, and wholesome amusements are some of the questions that should receive the attention of physicians with some of their time and influence. The physician who is too busy or indifferent toward all matters except those concerning his professional work to give any of his time or influence to any other matters, is very likely to be narrow, selfish and bigoted. "All work and no play makes Jack a dull boy," and likewise all profession and no diversion of any sort makes the physician a person who is failing to measure up to the standard of useful

ness and influence to himself and others that he should strive to reach.

Some people discourage any line of activity for the physician that takes any considerable amount of his time from his professional work. Some of the brightest and best physicians in the profession are those who not only work diligently at their profession, but have diversions of some kind that claim a portion of their time. They have a wider influence with their fellows, a better understanding of their needs and a greater degree of their confidence in matters of sickness and health as a result of these things. There are so many harmless diversions which, if not indulged in to excess or to the detriment of professional work, should prove helpful to every doctor if he chooses to devote a portion of his time to them. A real hobby would be helpful to some tired, discouraged, overworked doctors.

Every physician should be interested in politics—not in a narrow, partisan sense, but from the standpoint of good government and good citizenship. Politics being the science of government, it follows that the larger the number of good citizens who are interested in politics, the better politics and government we will have. The reason why politics is so little thought of and entered into by the people as a whole is because such a large number of the people have little or nothing to do with politics. If the best and most intelligent classes of the people shun politics and leave it to the other classes, then it naturally follows that we will have a lower grade and sometimes even dirty politics. Another reason why physicians should take more interest in politics is in order that they might, as a class, get more out of it than they do. As a class, physicians are not properly protected by just and wholesome laws. The reason for this probably is because the great majority of physicians are so busy at their professional work that they pay little or no attention to the election of the best men to office, or to the passage or enforcement of proper and just laws affecting their profession.

The fact that more is demanded of the medical profession than any other body of men, and that they are less protected by just laws than any other is largely the fault of the

after these matters in the way that counts—namely, through the channel of politics.

No other profession renders the amount of public service gratuitously that the medical profession renders. Then why not every doctor take more interest in politics and all, working together, so influence legislation, administration and public opinion as to compel the esteem, appreciation and protection that our profession is entitled to?

I am not advising any physician to permanently leave his profession to enter politics, but simply and only to take an active interest in politics, especially as it pertains to justice and the proper protection of our profession.

Lastly, all physicians should be interested in moral and religious matters. Not necessarily as moral or religious leaders or teachers, but because of their great importance and influence on society as a whole and on the lives and conduct of individuals. As intelligent members of society and leaders of thought and action along all lines, physicians should be interested in and work for the proper standards of conduct and proper behavior of individual members of society.

By virtue of the physician's association with all classes of people under all conditions, he has special opportunities for knowing and teaching by precept and example the proper ethical standards and rational control and regulation of human actions. The intimate relationship of the physician with the individual, the family and organized society make his responsibility all the greater to exert his influence for right standards among the people to the end that all may be lifted to a higher moral, ethical and religious course of action.

WHAT CONSTITUTES A SPECIALIST?

By E. C. Ellett, B. A., M. D.,
Memphis.

While a concrete definition of a specialist is difficult to give, we have a pretty clear idea of what we mean when we apply this term to a doctor of medicine, and it seems to me that the purpose of this paper will be accomplished if we can put into words just what our ideas on the subject are today. By a spe-

cialist in medicine we probably mean a man who has fulfilled the usual preliminary and other requirements of a medical education, including hospital work and more or less general practice, and who then by study and practice fits himself with special knowledge of certain diseases or of the diseases of certain organs, and by equipment, physical, mental and mechanical, is prepared to render a service in these particular conditions which is better than that which can be rendered by other men not so equipped. Incidentally, we usually mean that the man does this special work exclusively.

The main questions which will arise are: How much better equipped, physically, materially and mentally, must a man be to be considered a specialist? And who is to say when he possesses these qualifications? He himself is not an unbiased judge, and it should be that a certain definite course of preparation should be agreed upon, at the end of which period a disinterested tribunal should pass upon the individual, just as is done in the matter of his degree of Doctor of Medicine. Specialists are the result of a well defined demand, and this applies not only to medicine. A man may begin work as a carpenter, and as his experience grows he finds that he has a fondness and a talent for a certain sort of carpentry, such as cabinet work, and he is willing to give the time and care to this more delicate part of the work until he becomes a cabinet maker, and when people realize that he can produce an article at once as useful as an ordinary cupboard and at the same time ornamental, a demand arises for this product which justifies him in producing it alone. With the increase in population and wealth, as well as the development of certain tastes, and with the habit of having things connoting luxury, all sorts of demands arise and must be met by workers who concentrate on the production of the unusual. So from the earliest days in medicine we have had the differentiation between physicians and surgeons, and in time the development of a large number of specialties and specialists, some very natural, others, it seems to me, rather forced.

Men become specialists for different reasons. A very common one is for a son to follow in

his father's footsteps. Very often it is a matter of pure chance or accident. Still very often it is a deliberate choice of work that seems either easy or profitable, or both, and most rarely it is because a man is chosen by impartial outside person or persons, because they see in him promise of a talent that justifies development. This is not such a calamity, though, for if one has the intelligence and industry and personal qualities to fit him for medicine at all, the choice of the special sort of medical work should involve the consideration of only a few questions. A man who is a good reasoner and a clear logical thinker would make a successful investigator, research worker and diagnostician, while mechanical dexterity and ingenuity would serve him well in some department of surgery. If one has an architectural turn, so to speak, or what might be called an artistic eye and mind, and readily appreciates and applies mechanical principles, plastic surgery and orthopedic surgery would offer a fertile field for his peculiar abilities. The artistic touch, on the other hand—the light, sure touch—should fit a man for the performance of technically delicate surgical operations. There are many men who do a large and useful work, who have no originality, no mind for research or for reason, but who can learn to do work creditably if they know how. In surgery, some of these men make excellent operators, being sure and deft in their work, but they never devise anything, nor originate anything, nor make a single useful modification in any procedure or instrument, and as far as anyone can judge, never have an original thought. They are machines, and when furnished a pattern, can turn out, day after day, faithful reproductions of that pattern and are of a distinct but limited value to a community.

It will be a long time before we have specialists produced in any other way than by auto selection. There are other phases of the subject that we can touch, though, and the main ones are to establish standards by which specialists may be measured and then to provide ways and means to train specialists in accordance with these standards.

A long time ago I read a paper on "The Education of the Specialist," and I am glad

to know that the thoughts and hopes I expressed in that paper have now become realities, not because I thought and hoped them, because in all the subsequent writings on the subject my humble contribution has never to my knowledge attracted the attention I hoped it would, but because the things that appealed to me were so evident that they must have suggested themselves to everyone who seriously thought about the subject. Special societies have long been a sort of agency for the selection of specialists, but too often membership in them went, like kisses, by favor, and he who had not a friend at court remained outside. Another failure in that scheme was that they only took a man in after he became a specialist, and none of them ever showed the way to a man who was anxious to become a specialist. Now, many of these societies have raised their requirements for membership and, by recognizing certain agencies looking to the better classification of specialists, they are greatly helping the cause.

The first real step in clarifying this question came in the organization of the American College of Surgeons. Their work is well known, and while subject to some well deserved criticism, is on a firm foundation and is surely working to a good end. Its work in hospital standardization is most commendable and effective, and this is as it should be, that if we demand better work of surgeons, proper places must be provided for them in which to do their work better. Very soon after the College of Surgeons was organized, committees on education from the three leading ophthalmological societies worked out a plan which is the most promising thing in connection with specialties and specialists that the profession has yet produced. This plan crystallized in the formation of the American Board for Ophthalmic Examinations, composed of three members from each of the three societies, the Section on Ophthalmology of the A. M. A., the American Academy of Ophthalmology and Oto-Laryngology, and the American Ophthalmological Society, each society supplying a new member each year for a three-year term. This Board will pass on the credentials and qualifications of any one desiring it, and endorses and issues a certificate to those whom

it considers qualified. The investigation may cover only an examination of the candidate's record and his contributions to the literature of the specialty. It may further consider the examination of a number of case reports, and it may further require that he submit to an examination, largely practical in nature. The first examination of this board was held in this city four years ago, when most of the men who practice ophthalmology here appeared before the Board, and the majority of them were found to be qualified and received a certificate to that effect. I am sure that in no other city have so large a proportion of the eye men received this endorsement. After this year (1920) no men can be admitted to the American Ophthalmological Society, or to the Academy of Ophthalmology and Oto-Laryngology (as an ophthalmologist), or appear on the program of the Section of Ophthalmology of the A. M. A. unless he has this certificate. It will not be long before the medical schools and hospitals will follow suit in this matter. The work of this Board is mentioned in some detail, as it represents the best work done on these lines. The ear, nose and throat men have discussed this matter and it is hoped that they will some day take a similar action. The American Board for Ophthalmic Examinations is the Committee on Credentials of the American College of Surgeons for those desiring Fellowship in the College by reason of their qualifications in ophthalmology, so that these agencies are working harmoniously and not duplicating each other's efforts. It is hoped that the possession of this certificate will be in time expected by the profession, institutions and colleges, as well as by the people, just as they now expect the degree of Doctor of Medicine from medical men generally.

The next problem for this and other similar agencies is the establishment of proper courses for the training of specialists. A great deal is being done and it will not be long before a man can apply to some agency in any specialty and be advised exactly what to do and where to go to do it, to equip himself to do any sort of special medical work.

While preparing this paper my attention has been attracted to an article in the Journal of the A. M. A. of October 30, 1920, on the

subject of "Graduate Courses for the Training of Specialists." It announces the appointment by the Council on Medical Education and Hospitals of fifteen committees of nine men each from the A. M. A., and national association or associations in each specialty, to outline a minimum course of study which it believes should be pursued by the graduate physician in order to prepare himself in that particular specialty. Complimentary reference is made to the work of the ophthalmologists, and since they already have a committee of nine representing the national associations and the A. M. A., it is reasonable to suppose that this Board will receive this added recognition and authority. The committees will represent anatomy, dermatology and syphilology, internal medicine, obstetrics and gynecology, ophthalmology, orthopedic surgery, oto-laryngology, pathology and bacteriology, pediatrics, pharmacology and therapeutics, physiology, psychiatry, public health and hygiene, surgery and urology.

There is a responsibility on the man who does special work, or indeed on him who does any sort of medical work. It is rather the fashion to belittle the efforts of some of those who write and read papers, as well as those of us who attend medical societies. The greater part of the knowledge that any of us possesses was acquired, accumulated and handed to us by others. Unless a man is willing to be a professional sponge and deadbeat, it is his duty to treasure this knowledge, add to it if possible, improve it in any way that he can and pass it on to others. Everyone has some experience from which, even if he cannot draw a lesson himself, others may if the facts are properly presented to them, and we all owe it to the profession to aid in the maintenance of the agencies, societies, journals, etc., formed to disseminate this knowledge. We owe it to our patients to attend the societies and read the journals, that they may receive from us the benefit of what others have contributed to our knowledge. Even the man who is too lazy to ever write or read a paper can still contribute something. He can subscribe to the journals, even if he never unwraps them, and help them meet their expenses, and he can attend the societies' meetings and help fur-

nish an audience for those who contribute to the meetings, since nothing so dampens the ardor of the reader of a paper as empty seats.

Possibly specialists are born and not made. We hear of people who are "natural doctors." It will be a long time before we can rely on any but the made to order kind. But if men will train themselves by prescribed courses of instruction, submit their qualifications to the inspection of disinterested agencies, conduct themselves with the thought in mind of what they owe their predecessors, their profession and the people, they will find that they have that in themselves which justifies them in being called specialists. It is not and never can be solely a question of diplomas and certificates and titles, but something far beyond and far deeper than that, a thing which after all may be known only to the man himself.

THE TREATMENT OF CHANCROID.

By P. G. Morrissey, M. D.,
Nashville.

The treatment of chaneroid is unsatisfactory at best, and frequently extends over long periods of time. In the clinic chaneroids outnumber chancres probably over fifty per cent. The reason for this is twofold. In the first place, chaneroid can never make headway among cleanly persons. In the second place, a little soap and water well applied after exposure is a safe and sure preventive. The one who takes this necessary precaution is sure to escape its ravages. It may be said that it flourishes only where soap and water are not esteemed. Chaneroid occurs most frequently on exposed surfaces of loose skin, just posterior to the muco-cutaneous junction of the prepuce in man, and about the labia majora and the perineum in woman.

To obtain the quickest results from treatment and to prevent the oftentimes associated complications, chaneroid should be diagnosed early and the ulcer destroyed. For convenience sake it may be well to divide the course of chaneroid into three divisions, viz.: First, stage of destruction; second, stationary stage; third, stage of repair.

During the first stage, when the disease is

most active and is destroying tissue rapidly, the ulcer should be cleansed with green soap and water, as well as the surrounding tissue. Be sure that all of the debris in the ulcer has been removed by this agent and dry with soft gauze. When the depths of the sore are exposed and clean and dry (these three requirements are necessary) apply a five per cent novocaine solution and wait fifteen minutes until anesthesia is complete. With a redhot cautery proceed to destroy all diseased tissue in sight. Do not fear destroying too much, for failure to cure rapidly is more often due, not to too much destruction, but to too little. The next best agent to cauterize, if one has not the actual cautery, is nitric acid, following the same procedure as outlined above, care being taken to protect the healthy tissue and prevent unnecessary destruction. It is well after cauterizing with nitric acid to use sodium hydroxide to neutralize the acid and save the patient much suffering. If the cautery method is objectionable, another that gives satisfactory results in some cases is the thorough application of a 25 per cent solution of copper sulphate crystals in water, which is left in contact with the sore for three or four minutes and then sponged off.

Livermore, of Memphis, in an article several years ago suggested that an ounce of argyrol crystals properly applied would cure all the chaneroids in the United States. To my mind that was a rather vigorous statement; nevertheless I made the effort to follow the technique outlined and failed to get the results claimed for the method. Others are reporting splendid results with the high frequency electrode in conjunction with copper sulphate solution 25 per cent, claiming the copper solution will act as a conductor and carry the current to greater depths, thereby sterilizing deeper than if the electrode was used by itself. I have tried Dakin's solution with good results in some, and with complete failure in other cases. It is the sore that is not seen early or that is not favorably influenced by cauterization which causes more trouble and for which we have never been able to find in the literature a thoroughly satisfactory method of treatment. It is this type of sore that may be classified as the stationary type, refusing to heal and

resisting every known agent at our command. I know of no uniform methods by which we can claim results. Equal parts of phenol and tincture of iodine have proved useful in addition to large doses of mixed vaccines of staphylococcus and streptococcus, for it is well known that chaneroid harbors a mixed infection imposed on its causative agent, the Durey bacillus.

Another type of chaneroid to be considered is the gangrenous or phagadenic type. It is the most severe and the most resistant form with which we are familiar. It may occur as a complication of both chaneroid and syphilis. It spreads rapidly, is made worse by any half-way measures, and unless checked early is capable of destroying a part or even the whole penis. Happily such cases are rare.

Another type that demands special consideration, and that is frequently seen, is that complicated with inflammatory phimosis. The majority of this class of patients have a long, tight prepuce with the chaneroid infection underneath or on the inside of the prepuce cavity, which retains the secretions and bathes the surface with the irritating pus, at the same time exciting a cellulitis preventing retraction of the foreskin and prohibiting effective treatment. There is but one method of treatment for this complication: that is to do a dorsal incision under local anesthesia; go through the median line well back of the gland, open wide the prepuce and expose the ulcer and treat same as the ulcer on the outside. This should be done early in order to avoid needless destruction of tissue and prevent the development of inguinal adenitis.

It is a well known fact that the treatment of chaneroid is at best unsatisfactory. In spite of the various methods at our command, the ulcers continue and refuse to heal; the inguinal glands become involved and often break down and suppurate. However, I believe—in fact, my experience with the great number that have come under my observation has been—that, if seen early, the majority of patients will do well if the ulcer is properly destroyed. Another method I have recently adopted is to wash the ulcer with green soap and water each day and dry thoroughly and apply a well-made ointment of mercurchrome, 5 per cent, until

the ulcer becomes sterile. It is surprising to see an old, foul ulcer simply teeming with pus and infected material even after thorough cauterization has been practiced. After a few cleansings with green soap and water, thoroughly dry and apply mercurchrome ointment. The ulcer will soon take on a healthy appearance and show evidences of healing more rapidly.

In presenting this subject I have nothing new to offer in the treatment of this most persistent disease, and in conclusion I want to say:

First. Be sure that you are dealing with chaneroid only. Use the dark field and Wassermann as many times as necessary to exclude syphilis.

Second. Exclude Vincent's angina by microscopical examination.

Third. Remember that green soap and water is a sure prophylactic; then try it as a sterilizing medium. My experience convinces me that it has some value as an antiseptic agent in this class of ulcers.

Fourth. After the ulcer has been cleansed thoroughly, dry and apply mercurchrome ointment.

Fifth. About every fourth day apply 20 per cent solution of silver nitrate.

Sixth. Put on as a dressing sufficient gauze to prevent friction and rubbing from patient's clothing.

The results I have obtained by this method have been truly gratifying. I am convinced that in simple uncomplicated chaneroidal infection if the above treatment is followed one will be surprised to see how much more rapidly these ulcers will become sterile and heal and how few complications will arise.

FOREIGN BODIES IN THE EYE.*

By B. F. Travis, M. D.,
Chattanooga.

It is my purpose to discuss the subject from two standpoints, first as to those foreign bodies within the eyeball, and second those without, hoping to elicit a full and free discussion.

*Read at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

The first thing a surgeon is confronted with when the patient presents himself is the location of the foreign body. In every injury attended with perforation we must at once propound the question whether or not there is a foreign body left in the eye. The history itself in most cases supplies points important for the determination of this fact. For instance, if a person has run a knife or pair of scissors into his eye, we would naturally suppose that there was no foreign body remaining in the eye; but on the other hand, in one who had had a perforating injury of the eye, produced by the explosion of percussion cap or while he was hammering iron or steel, the presence of a foreign body in the globe is extremely probable. Most commonly we have to deal with fine splinters, chiefly chips of iron or steel, and occasionally glass and fragments of stone. The foreign body may be situated in any part of the eye. It may, if it has sufficient force, after traversing the entire eyeball, perforate the sclera the second time on the opposite side and penetrate into the tissues of the orbit.

The precise determination of the place in which a foreign body is located within the globe is generally attended with great difficulties. If seen immediately after the injury, it is possible to see the foreign body with the ophthalmoscope, although even then the inspection of the eye is often rendered impossible by the presence of hemorrhages, and a little later the difficulties of this inspection are still greater by reason of the cloudiness which soon develops in the media. If we are dealing with metallic fragments we may be able to make them out and localize them by means of the x-ray, and for chips of iron or steel we may also employ a sensitive magnetic needle.

It is only in rare instances that a foreign body is tolerated for any length of time in the eye without setting up inflammation, the body itself remaining free or becoming encapsulated in an organized exudate. In the great majority of cases the inflammation follows in a few days after the date of injury.

In every case of perforating wound of the eyeball the prognosis is grave, as we do not know whether the foreign body causing the injury was aseptic or not. In general, the na-

ture of the wound, the condition of its edges, and location serve to determine the prognosis, and offer a guide to the proper steps to be taken in order to relieve the patient. The anterior chamber tolerates foreign bodies better than any other part of the eye, excepting possibly the lens, hence one may be more deliberate in putting into effect plans for their removal than if they were in the uvea or the vitreous.

Foreign bodies into the superficial layers of the cornea are among the most common of eye accidents. What are most frequently observed are small particles of iron in the cornea, particularly among mechanics like iron founders, blacksmiths, locksmiths, etc. If the fragment of iron remains sticking in the cornea, it becomes surrounded very soon by a brown ring, because it impregnates the portion of the cornea in its immediate location with iron and turns them brown. These small bits of iron or steel are sometimes rather difficult to locate, but with a strong lens and good light, makes it much easier.

The manner of removing a foreign body from the interior of the eyeball depends greatly on its size, character and location, as we are speaking more especially with reference to chips of iron or steel, which are available to magnetic influence. Much has been said and written about the kind of magnet that is most efficient. The knack with which the magnet may be manipulated, bringing the electrode into the most favorable position, must constitute a most important factor. Since the introduction of the x-ray the medium-sized magnet as a rule is preferable compared with the giant magnet.

The history of the removal of foreign bodies from the vitreous has been made mainly since the use of the magnet in eye surgery. Dixon of London in 1859 was the first to remove a piece of metallic substance from the vitreous. By means of a large permanent magnet it was drawn close to the outer wall of the globe and extracted with forceps through a small incision. The eye was lost. In 1875 McKeown, of Belfast, went further than had Dixon, in that he inserted the tip of a magnet through a scleral opening into the vitreous, and succeeded not only in removing the foreign body but

also in saving the eye. This was the first instance in which the magnet was made to enter the eye. His example was soon followed by others, among them Knapp and Gruning of America. Gruning devising a very effective and convenient permanent hand magnet. To Hirschsberg, of Berlin, however, belongs the credit of having rendered the procedure practicable. This was through his invention in 1870 of his electro magnet. It has held its own even up to the present time. This magnet with a storage battery can be easily carried.

In 1892 Professor Haab conceived his giant electro magnet which has the power to draw a magnetic foreign body from the farthest limits of the vitreous chamber through the lens and pupil into the anterior chamber, by the mere application of the tip of the magnet to the cornea. This no doubt is one of the best of the large magnets, though there are others possibly as good, and are indispensable in special cases.

There are many cases where the eye ball has been penetrated by a large piece of iron or steel with ragged edges which has so lacerated the cornea and sclera as to leave no possible hope of vision. I would in such cases advise immediate enucleation or evisceration. However, if the traumatism is not too great we may avail ourselves of the ten-day period without risk of sympathetic ophthalmia.

Foreign bodies in the cornea as I have said are by far the most frequent, and should be removed with great care, in order to disturb as little of the epithelial layer as possible.

Some local anesthetic should be put in the eye a few minutes before attempting to remove it. After the foreign body has been removed it is my habit to put a drop of some antiseptic in the eye, either silvol or argyrol, and then bandage to avoid the eye becoming infected.

I will not take your time in case reports, but hope to impress upon you the importance of cleanliness, antiseptics, and see that the eye is properly bandaged in every case before the patient leaves your office.

TUMORS OF THE BREAST.

By W. A. Bryan, M. D., F. A. C. S.,
Nashville.

It could be of little interest to discuss at considerable length benign tumors of the breast; they are to be dealt with as benign tumors elsewhere, by removal, because their benignity cannot be surely known until the microscope has passed upon them. But removal is more imperative in benign tumors of the breast than in perhaps any other part of the body, because of the relatively great incidence of malignant tumors in this organ. Still there is no question about the future conduct of the surgeon in a case from whom he has removed a benign tumor. He has discharged his duty. Likewise in cases of definitely malignant tumors there is no question, no room for discussion. They must be dealt with radically immediately.

It is assumed that the points interesting me in regard to breast tumors will also interest my confreres. On that hypothesis this study will be confined to those cases of breast pathology which raise a question in the surgeon's mind as to whether removal of the gland should be done completely, or whether conservative surgery should be done. The conditions in which this question arise are chronic cystic mastitis, cystadenoma (senile parenchymatous hypertrophy), and papillomatous cysts. The study will therefore be confined to these items.

1. Chronic mastitis is used in the broad sense here and is intended to embrace the other form of chronic mastitis sometimes found in the literature as a separate and independent process—namely, chronic interstitial mastitis.

The causes need not be entered upon, for they are unsettled and probably to considerable degree unknown; because it is not etiology but pathology and culmination of the process that attracts immediate attention. The fact that chronic mastitis is rather common, and that it occurs in single women and married, in those who have borne children and in those who have not, in women who have had abortions and in those who have not, must

raise a doubt regarding the influence of function and normal and interrupted evolution on the development of so important a lesion.

The changes found in chronic mastitis are what one may consider the average changes, such as are described in the books, the development of new connective tissue in the breast, deposited around the ducts, the contraction of this tissue and the consequent obstruction to escape of glandular secretions and the formation of cysts, usually small in size. These are simply retention cysts. So long as the surgeon is called upon to pass judgment on so simple pathology as this, his problem is an easy one. But there are variations of the most serious import. There is the large cyst, which shows up distinctly as a bluish sac of fluid when incision is made down upon it, which Bloodgood has emphasized as the blue-domed cyst, and concerning which as emphatically asserted that it never becomes malignant. There is another variation still within the domain of benignity, in which there is fibrous tissue and cysts, and proliferation of the cells lining the cysts until the entire space is occupied by the greatly multiplied cells. It does not necessarily follow that because one removed cyst is so filled with proliferated cells they all are. But does it necessarily follow that because the cyst removed and sectioned proves to be simply cystic, we are to conclude that all the numberless ones not removed are in the same condition? What interpretation are we to place, then, upon these two extremes? What influence shall these facts impose upon our surgical conduct? The answer shall be made on the hypothesis that chronic mastitis may be a precancerous lesion; may contain the elements out of which cancer develops directly, and that cancerous breasts, even those which give no history of mastitis, as a matter of fact in the majority of instances do show unmistakable evidence of chronic mastitis in those portions not yet invaded by the cancer, when careful study of the breast as a whole is made. There is a question as to the truth of these statements on the part of some pathologists, but it appears to me that the preponderance of evidence is on the other side.

Furthermore, numerous women who have

chronic mastitis go through life unharmed by the process, doubtless the majority of them. Manifestly, therefore, it would not be permissible to remove every breast in which the process is present, or every pair of breasts, for it is found in both breasts in most cases, originating synchronously or successively. It is manifestly unwise to amputate in all instances, although there is no known curative non-operative remedy.

The following seems to me a fair course to the patient:

1. If the discovery of chronic mastitis is incidental in the course of a general examination, and if the process has been present for a large number of years without producing perceptible changes in appearance or in symptomatology (if symptoms are present), the advice should be to leave the breast alone and watch it, and that active investigation should be undertaken only upon the advent of some change. This same advice should be given to the woman who comes seeking an opinion on this type of old mastitis, unless she has been scared to the point where something must be done to allay her worries. Then a nodule may be removed and examined microscopically to confirm the clinical opinion of benignity.

2. Those cases which are more recent, which in other words have not had time to show their colors, should be held under competent supervision at stated intervals of a month or so, or perhaps preferably should have a few of the nodules removed and examined microscopically, with the distinct understanding that negative findings must not dispense with the necessity of supervision until after the process has assumed a state of inactivity, when one may reasonably hope it will remain quiescent.

3. When certain of the nodules advance in size ahead of the others, it should be accepted as an emphatic signal for their removal and investigation. As a corollary to this rule it may be added that if a previous investigation has been made some years before and no suspicion of danger signals aroused, and if subsequently after a long period of quiescence, especially when no pregnancy has intervened, other nodules advance in size ahead of their fellows and perhaps become sore, investigation should be repeated. I saw a case of this kind

recently. The interval was five years. Two incisions were made at the former operation. No evidence of danger was discovered. At the last sitting evidence of danger was found and the breast was removed.

4. All these cases in which complications arise that cannot be satisfactorily explained as having no association with and no inclination toward cancerous development, should be promptly investigated. This includes especially those from whose nipples there is a fluid discharge; of the discharging cases the most suspicious, the most dangerous, are those whose exudate is sanious. The importance of the above rules may be emphasized by stating that Ewing has found pronounced precancerous lesions or miniature carcinomata in about 50 per cent of the breasts excised for cystic disease.

II. Cystadenomata and papilliferous cysts are hopelessly confused in the discussions found in the literature on the pathology of the subject; or it might be said, with more propriety, unwarrantedly separated from each other in certain surgical texts. Apparently they are of the same group—namely, that of intracanallicular cysts, and are distinguishable not in essence, but in the detail of the manner of development. Hence, as might be expected, there are all grades of variation between the two, with no dependable line of demarcation either in a clinical or pathological way. If such distinction were possible, it would not be of profit in the purpose of the present discussion.

Ewing discusses the subject under the heading of "Papillary Intracystic Fibro-adenoma, Cystadenoma," thus showing the view of an eminent pathologist on their identity. These tumors are found more frequently after the menopause, the average age being given at from 49½ years to 52 years. The tumors are found in women who have borne children and in nullipara, and in extreme young womanhood and extreme old age. They are of slow growth and usually appear freely movable beneath the nipple, which is sometimes retracted (because of the tumor's presence). This fact deserves emphasis. Too, it must not be accepted that retraction of the nipple in the presence of a tumor justifies the diagnosis of

cancer. These cysts growing in the central portion of the breast may be single or multiple. Contact of the walls of adjacent units may cause absorption of these walls and coalescence of several units into a single large mass. The tumor proper occupies the cyst cavity and may be attached to the wall, which serves as a capsule, at a single point or at numerous points. It sometimes fills the cyst cavity only partially, sometimes completely. The growth may be such that it adheres to the skin, through which it may rupture and present the appearance of a growing granulating mass resembling sarcoma (sarcoma phyllodes). The invasion of the skin by these tumors is also a misleading sign too likely to remind one of cancerous invasion. When the skin is broken through by the tumor mass contained in these cysts, a very important differential point is the ability to pass a probe between the granulation excrescence and the cyst wall at the margin of the skin. This is not possible in ordinary cancer cases which are ulcerated. This growth of the tumor tissue occasionally assumes another interesting phase. The contained tumor substance may grow out of the galactophorous ducts and appear in the areola. Flat epithelium sometimes covers these processes, after a time. This class of tumors is capable, if undisturbed, of attaining enormous size. Kaufmann gives the maximum of 20 kilos. Such cystic tumors are capable of secreting milk if pregnancy occurs. They are then rapidly enlarged, in contrast with their normal slow growth, and are likely to be mistaken for galactoceles or malignancy. In any case there may be a serous or sanious discharge from the nipple. This is so suggestive of malignancy that even though the tumor may have been slow and of long duration it should require immediate exhaustive investigation. But the appearance even of a bloody discharge from the nipple in the presence of tumor cannot be accepted as *prima facie* evidence of malignancy.

The two dangers then hinted at in discussing chronic mastitis, the danger of removing a non-malignant breast and that of leaving in toto or in parte a malignant breast or one approaching dangerously near to malignancy are emphasized in cystadenoma, because it is

capable, as has been shown above, of assuming most sanguine clinical signs of malignancy when it is not malignant at all; these signs are bloody discharge, retraction of the nipple and perforation of the skin with a fungoid cauliflower mass of tumor tissue; cystadenoma is capable likewise of undergoing malignant change in its depths without clinical warning half so indicative of malignancy as that given already occurring in the benign forms. There is an advantage here that this form of precancerous lesion is found chiefly in women past the menopause, when from social and physiologic reasons the loss of a breast is less to be regretted.

There is less tendency for cancers arising from these duct cysts to invade the lymph nodes early than in the other forms of carcinoma of the breast. A case is reported attaining the size of a child's head in which no lymphnode involvement had occurred (Ewing).

The surgeon's conduct here halts between two extremes of advice, one suggesting resection (Rodman) the other urging amputation (Delbet). According to our best information 10 per cent of these cases are or become malignant. One does not wait here as in cases of mastitis. It is my belief that if the tumor is large or if it has perforated the skin, or if it shows rather certain signs of malignancy in addition to the three deceptive signs already given, the breast should be removed. Otherwise the tumor and a surrounding wall of apparently healthy tissue should be removed and submitted to the microscopist for further guidance. No section of the tumor should be excised in loco and frozen section should be depended upon only when an absolutely certain opinion can be had at the hands of a master.

THE MANAGEMENT OF TUBERCULOSIS AND TRAINING THE TUBERCULOUS PATIENT IN THE HOSPITAL OR SANITARIUM.*

By W. S. Rude, M. D.,

Watauga Sanitarium, Ridgetop, Tenn.

The unceasing warfare against tuberculosis during the last decade has broadened our knowledge of its causes, transmission, treatment and prevention, until its ravages are becoming gradually reduced and its sufferers are being convinced that it can be prevented and cured. An energetic and a successful crusade has been waged by our boards of health, state and national organizations and community societies, but our mortality rate for tuberculosis continues higher than for any other disease known to humanity.

It is an undeniable fact that many curable patients die as the result of our failure to diagnose the existing trouble before the disease has progressed to an advanced stage and its victims are overshadowed by a prognosis almost destitute of hope. Unfortunately tuberculosis cannot be detected in the incipient stage except in a small percentage of cases, but this does not justify us in the common practice of delaying the diagnosis until tubercle bacilli are found in the sputum and the disease has reached the advanced or moderately advanced stage. There is a tendency on the part of many of us to rely too much on laboratory findings and too little on a thorough physical examination of the patient. The diagnosis of pulmonary tuberculosis in its early stages can only be made by connecting the family, physical and clinical history with the pathologic lesions and systematic reaction of a slight tuberculous infection. The majority of patients, however, are beyond this stage before they apply to the physician for assistance.

The management of tuberculosis consists chiefly of securing the loyal co-operation of the patient and intelligently applying the measures at hand. After arriving at a diagnosis it is highly important that all patients shall be dealt with frankly and honestly, and the practice of withholding the true condition of a patient when it is known that he has tuberculosis should be condemned in the strongest sort of language. Tell the patient, with exercise of judgment as to his temperament, the nature of his illness. Many physicians are inclined to keep the patient in ignorance as to his true condition and to tell him that he is merely suffering with a "bronchitis," pro-

*Read before Middle Tennessee Medical Association, Lawrenceburg, Tenn., Nov. 19, 1920.

tracted cold, remains of "flu," or a weak spot on the lung. Fishberg says: "It is our duty in an overwhelming proportion of cases to state his position frankly to the patient, to explain the reason for the treatment prescribed, and the possible penalties which may have to be faced if our advice is neglected."

It is not within the scope of this paper to discuss the details of treatment further than to give an outline of the general principles that have been successful in the management of tuberculosis.

The well regulated sanitarium is the agency through which the treatment of tuberculosis can be carried out in its highest degree of efficiency. This is largely due to absolute regulation of the patient's daily conduct. Not only does the patient learn to conduct himself for his own benefit and the protection of his relatives, but when he leaves the institution, its teachings are spread among all with whom he comes in contact. All tuberculous patients, however, cannot be placed in institutions for treatment, from the fact that not enough hospital beds are available to accommodate all; comparatively few of the great mass of patients discover that they are afflicted with this disease; and of those who do know they are afflicted, many, on account of civil condition, social relation or other responsibility, cannot or will not accept the advantages of sanitarium treatment. These patients who cannot or will not accept institutional treatment must be treated at home, and the measures employed should be along the same lines that have been proven successful in the modern sanitarium.

Treatment.

The real advance which has been made in the treatment of tuberculosis in recent years consists not so much in finding new remedies, but in a better understanding of the patient as well as the disease, and in making a broader application of the remedies and principles which we have long known would produce favorable results in the majority of early cases; and the remedies at hand are intelligently applied under favorable circumstances. Unfortunately we have no definite direct method of curing tuberculosis. The measures upon which we rely are indirect, in that they

are not able to produce the specific action of destroying the tubercle bacillus.

Treatment in the sanitarium, or in the home by sanatorium methods, involves chiefly: Rest, fresh air and an abundance of wholesome food. None of these three can be dispensed with if we are to obtain results. While all are necessary for increasing the patient's general power, yet many physicians fail to advise the patients of the importance of bringing all three of these measures into use. Pure air, rest and sunshine can avail but little if the patient is not provided with an abundance of food. In order to obtain the maximum results from these measures we must remember that every case is an individual one and what will improve one patient may be harmful to another.

To tell a tuberculous patient that all he needs is fresh air, rest and food, without instructing as to when, why and how these measures should be applied, means nothing to the patient. To obtain results he must have intelligent guidance.

Rest.—The proper employment of rest is greater than any other single factor in the modern treatment of tuberculosis. This, however, must be adapted to the requirements and capabilities of the individual patient, bearing in mind the stage, activity and condition of the disease and the patient as an individual.

When we speak of rest we mean mental and bodily rest, free from the cares and worries of life, and without anxiety of dying of tuberculosis. Mental worry, fear, anxiety, depression and pessimism go to provide one of the surest routes to a fatal issue. It is not enough to prescribe rest for a patient, but he must be shown and taught when to rest, how to rest and why he rests. Simply lying upon a bed or in a reclining chair does not constitute rest. Tranquility of mind, relaxation of body, passiveness of thought—in other words, perfect rest, mind and body—is the essential requirement. This should be indulged in for at least eighteen hours of the twenty-four constituting the day, and always in the open air, winter and summer, rain or shine.

Fresh Air.—While fresh air must be given an important place in the fight to overcome tuberculosis, yet it must be borne in mind

that, like rest and food, it has no specific action upon the tubercle bacillus and is only an aid to the measures for increasing the general resisting power of the patient. Outdoor life has been prescribed too often for the tuberculous without regard to their condition, possible reactions and other ill results.]

In addition to the measures already mentioned, heliotherapy, hydrotherapy, psychotherapy, tuberculin, autogenous vaccines and artificial pneumothorax are measures that may yield excellent results if intelligently applied to the individual case. As previously stated, every case must be treated as an individual one and the measures brought into use must be indicated.

The following general rules have given excellent results at the Watauga Sanitarium:

1. On admittance all patients are put to bed for three days for observation.

2. After recording the temperature, pulse and other symptoms for a period of three days, and after making the necessary laboratory test, the patient is given a thorough physical examination.

3. Patients with temperature above $99\frac{1}{2}$ are instructed to remain in bed until the maximum afternoon temperature is below $99\frac{1}{2}$.

4. All patients receive light nourishment at 9 a. m. and 3 p. m. except when some unusual condition contra-indicates.

5. All up patients recline in chair or in bed from 8:30 to 11 a. m.

6. All up patients recline from 1 to 4 p. m.

8. All patients retire for night at 8:30 p. m.

8. No patient is permitted to take more than two tub baths per week.

9. Patients with temperature less than 100 are given daily sun baths when weather permits. These baths are given by gradually increasing the time and exposure of the body until patients are able to remain in sun for a period of two hours with entire body exposure.

Training the Patient in the Sanitarium.—If the world is ever to be free from the bondage of the "Great White Plague," it must come through education, because tuberculosis is a

disease of the uneducated people, from a technical viewpoint. It is a disease which reaps its richest harvests in an atmosphere of ignorance, prejudice and superstition. The greatest culture media for the propagation and dissemination of tuberculosis are the conditions which result directly from improper living, bad hygienic surroundings, unwholesome sanitary conditions, and lack of knowledge of the life history of the bacterium which causes the disease and the conditions which favor its life and development.

Primarily every patient goes to a tuberculosis hospital or sanitarium for an arrestment of his disease, but this is not the only benefit he may derive from institutional treatment. He is removed from the environment by which he was surrounded during the development of the disease, and placed where conditions are adapted to his needs, along with other people who are striving to overcome the same disease. He is in a school where he learns to put into everyday use the principles of treatment and measures of prevention that are conducive to better health. This training is of paramount importance in controlling tuberculosis. Early cases learn to correct and adjust their methods of living, and though they may not remain under institutional care until cured, they are prepared to continue their treatment at home with good results. Advanced cases may or may not receive material benefit from institution treatment, but will learn to properly care for themselves and, still more important, learn to protect others. The failure of many institutions to admit these advanced cases robs the public of this protection, and children of the family continue to remain in contact with a dangerous infecting environment. These patients are taught that tuberculosis will not persist when the conditions favorable for its development and transmission are eliminated in the home, when fresh air, sunshine, regular habits and wholesome food are regarded as vital necessities and when methods of living approach the accepted standards of health.

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EDITORIALS

CALLED OFF.

To the Members of County Medical Societies,
Tennessee State Medical Association:

Some time ago the Division of Venereal Disease Control of the Tennessee State Board of Health and the Secretary of the Board, with the purpose in mind of rendering what it was thought would be a helpful service, considered a plan of having some man thoroughly familiar with the chemical and therapeutic nature of arsphenamin, its laboratory preparation, indications and contraindications for its use, and the various techniques in vogue to appear before a number of meetings of county medical societies in the state to which physicians from nearby counties would be invited. There was absolutely nothing involved in the matter except a desire to bring to the profession of the state a scientific presentation of the subject of the treatment of syphilis with arsphenamin. It was first hoped that some qualified man from the hygienic laboratory could be secured for this service, but when it was found that this hope could not be realized other available men were considered. It was found that the services of a very competent man engaged in the operation of his own private laboratory could be secured. It was decided to put the matter up to the various societies for the purpose of ascertaining whether or not the proposed plan would meet the favor and approval of the societies before arrangements were undertaken. Accordingly, letters were sent to the Secretaries of the societies and the replies received indicated that there was not only a demand for the proposed demonstration and discussion, but that it was considered a very good thing to have done. After the receipt of these replies from County

Secretaries, the arrangements were completed for having a number of society meetings with a program as above indicated. One county medical society, and only one, advised that that society did not care to have the program as proposed. A number of letters were received from individual physicians commending the movement and at least one county indicated its displeasure that such meeting as was suggested should not be held in that county.

When the arrangements were all made notices of the dates and places of the meetings arranged for were sent to some 1,800 physicians of the Tennessee State Medical Association in the state.

It has come to my hearing within the last twenty-four hours that some unfavorable criticism, indicating suspicion and resentment, had been made in one county society other than the single one which had rejected the plan. This society, however, took favorable action on the proposition and the meeting was arranged for. The criticism indicating suspicion of the whole movement was due to the fact—which was clearly set out in all latter communications about the matter—that the man selected to do the work was engaged in operating his own laboratory for making and selling arsphenamin; the criticism indicating resentment was to the effect that the members of the particular societies concerned did not need instruction in the technique of arsphenamin administration. I have no reply to offer to this criticism except to say that none of it is justified in view of the very honest purpose that was had in mind when the offer was made to county societies; nor in view of the fact that the whole matter was carefully taken up with officials of county societies before negotiations were entered into; nor in view of the fact that most of the officials communicated with replied favorably; nor in view of the fact that the man who was secured to do the work had agreed that any arsphenamin approved by Government agencies would be used and that all of it would be used and that no reference of any sort should be made anywhere in the interest of any product or method that would give undue advantage to such product or method—in short that no sort of commercial interest should be served; nor in

view of the further fact that all of this was very clearly and frankly set out in the letters that were sent to county societies.

However, I, as Secretary of the State Board of Health, and the Director of the Division of Venereal Disease Control are both unwilling that any action of ours should be subject to any sort of suspicion of unfair dealing or as any sort of reflection upon the medical profession of Tennessee as represented in the Tennessee State Medical Association, even though suspicion and resentment should be harbored in the minds of even a very few only. For that reason the program that has been arranged for and announced for certain dated meetings of county societies, at which meetings arsphenamin therapy was to be discussed have been called off. Letters to this effect have been mailed to secretaries of all county societies and to individual members of the Tennessee State Medical Association.

Very truly yours,

OLIN WEST,

Secretary and Executive Officer Tennessee State Board of Health.

Nashville, Tenn., Jan. 1, 1921.

THE CRIPPLES.

The New York Committee on After Care of Infantile Paralysis Cases has published a report of a survey of cripples in New York. This survey, which seems to have been very carefully made, has brought to light some very significant facts, which, while they apply specifically to New York City, are probably indicative of conditions throughout the country's largest centers of population. It is not improbable that several of the New York findings reflect the general conditions throughout the country, making due allowance for differences which must be considered.

The survey of New York determined (1) that there are approximately 36,000 cripples in that city. (2) That of all cripples about 50 per cent are under 16 years of age; and that about 63 per cent became crippled before reaching the age of 16 years. (3) That nearly one-half of the cases discovered in the survey were not receiving treatment; that there are in New York probably 1,000 cases of poliomyelitis,

Pott's disease and tuberculosis of the joints not yet diagnosed; that there are about 3,700 cases with these diseases that have been diagnosed but have ceased to apply for treatment; that over 50 per cent of the cripples are not known to any agency. (4) **That very few cripples attend high school.** (5) That there are enough operative beds and sufficient clinical facilities for satisfactorily treating cripples, but insufficient number of convalescent and custodial beds.

The problem of the cripple is a great problem that has nowhere received the consideration that it deserves. The handicap of a lost or deformed limb or a crooked back is a far greater handicap than it should be in most instances because no particular effort has been made by any particular agency to give the victims of crippling defects opportunities for receiving corrective treatment. Our educational scheme has not included any plan with definite purposes for giving the cripple that sort of education that will enable him to utilize his normal faculties to the best advantage. The cripple is, of course, necessarily limited in his choice of a vocation, but there are many things that he can do as well as any one else can do if he be given a chance to prepare himself for doing them. Elementary and secondary education is really far more important for the cripple than for the normal child, and the proper vocational education is absolutely necessary for the cripple if he is to have even a fair show for becoming an useful and productive citizen. There are to be found on the streets of every city of this state crippled beggars who would not be beggars, but who would be producers, if they had but had the right opportunities for equipping themselves to do useful work; and there are to be found in nearly every community outside of our cities idle cripples who could do something worth while and who, in most instances, **would** do something worth doing could they be properly taught to work.

The ignorance which prevails as to the possibilities of corrective treatment for congenital defects is appalling, as is the superstition that abounds with respect to having such defects corrected. We once had occasion to visit a home in which there were five chil-

dren with deformed limbs. Upon asking the father of these children, a big, raw-boned, double-fisted fellow, why he did not have the poor little twisted legged fellows treated, we received a reply to the effect that if God Almighty had not meant for them to be born crooked they would not have been so born and that he did not intend to fly into the face of God Almighty! On another occasion we were told by the mother of a club-footed cherub that she knew if she dared to have her baby's feet straightened that something terrible would happen to her and something worse to the child! And how often have we been told by the parents of crippled children that they could not afford the cost of corrective operations and hospital care! Somehow, somewhere hospital facilities and free surgical care should be made available for the benefit of the children of the poor who come into the world with bodily deformities or who are made cripples by accident or otherwise. Our orthopedists and our general surgeons are as generous as any to be found anywhere and have given their services for the benefit of the indigent crippled very freely, but the cost of appliances, the length of time needed for carrying out effective treatment, and numerous other factors make the treatment of the deformed an expensive business and no individual surgeon can afford to pay the cost of appliances and to devote the great amount of time required to any considerable number of cases of this nature within any one year. About three endowed hospitals or hospital wards for cripples would meet a most pressing demand in Tennessee, and, with the services of the splendid surgeons we have, which we feel sure would be given in generous quantity, would accomplish a most worthy work of mercy and benefit to a deserving class.

It is interesting to note in the report of the New York Committee on the After Care of Infantile Paralysis Cases that of 6,575 surviving children afflicted by infantile paralysis in that city the number of cases of deformity is almost negligible. This means that New York is well provided with the facilities necessary to give such cases the care they need and that such care has been given. We doubt that any other city or any other sec-

tion of this country can make as good showing in this respect as New York has made.

HUMAN ANTHRAX.

During the last two years the United States Public Health Service has issued several bulletins warning of the danger of anthrax infection from shaving brushes. In the Monthly Bulletin of the New York City Department of Health is reported an investigation of thirty-four cases of human anthrax which occurred in New York during the period from January 1, 1919, to October 1, 1920. The source of infection in sixteen of the thirty-four cases was found to be the shaving brush, while a hair brush was the offending agent of transmission in one case and a dusting brush in another. None of the eighteen victims infected from these brushes was engaged in an occupation in which he was required to handle hides or hair. The source of infection was not determined in two cases, and the remaining fourteen cases were all in persons whose work required them to handle hides or hair. The study of these thirty-four cases of anthrax indicates that the Public Health Service had ample justification for issuing its oft-repeated warnings as to the danger of the shaving brush—especially the *cheap* shaving brush and the new shaving brush, which were pointed to as most dangerous.

There were eleven deaths among the thirty-four cases, the five first reported having all died. Anti-anthrax serum was used in the treatment of twenty-one of the cases which recovered, either alone or together with incision or excision and chemical applications. In twelve of the cases with favorable outcome this serum was used alone.

Cases of human anthrax have been reported from various states within the last two or three years in far greater numbers than in former years and the shaving brush has been convicted as the carrier of infection in a very large proportion of the cases. Keep this fact in mind.

MAYOR OF MORRISTOWN.

The little city of Morristown is one of the most substantial and progressive towns in its

class that we know of anywhere. Morristown quit standing still some years ago and is always looking forward. In the recent election of city officials there were 1,558 votes cast for mayor and 979 of those votes went to the credit of Dr. W G Ruble, a busy doctor and an active member of the Hamblen County Medical Society. We sincerely hope that Dr. Ruble's administration of the affairs of his splendid home city may be attended with great success.

We have not a very high opinion of the so-called "doctor politician," but we do believe that if more interest in the general political affairs of the state and of individual counties and towns in the state were shown by physicians as a class that much benefit would follow. Occasionally it has happened that a busy doctor and one who has been representative of the best things in medicine has been selected to administer the affairs of a Tennessee city. Insofar as we have ever heard or known these doctor-mayors have made good and have rendered splendid service to their communities. Every board of education in the state should have a physician as a member and there are other boards and commissions that would be greatly helped by the advice and active help of a good doctor.

THE JOURNAL NEEDS COPY.

The supply of material for the Journal has been well-nigh exhausted. There is not enough on hand for the next number. Leaving out two or three papers which have been submitted, but which will have to be rewritten before they can be put into proper shape for publication, we have not enough material on hand to fill more than a very few pages.

Appeals have gone out to our members several times lately—through the columns of the Journal and through letters to individual members—for contribution of scientific papers. The supply has not been nearly equal to the demand and we now find ourselves facing the possibility of having to fill the February, March and April journals with copy "lifted" from other medical publications. If we could only secure all the papers that were prepared for the last annual meeting at Chat-

tanooga this bankrupt conditions of our "copy" files would not exist.

It is downright wrong that the Journal should be put in any such position as that in which it finds itself. The Tennessee State Medical Association has a wealth of ability in its membership, which embraces a large number of men who can, if they will, contribute good papers for publication that would be worthy of appearance in any medical journal. If we are to have a monthly society organ, we must have something to go into it and that something must be manufactured by the members of the Tennessee State Medical Association. Have you anything to offer? If so, send it in.

TRACHOMA IN TENNESSEE.

Field workers of the Tennessee State Board of Health have recently discovered a large number of cases of trachoma in a Middle Tennessee county. The indications are that trachoma is also excessively prevalent in adjoining counties, though it has not yet been possible to make the necessary investigations to establish the facts. The diagnosis of trachoma in the county above referred to have been confirmed by a very experienced officer of the U. S. Public Health Service, whose duties are such as to require him to give most of his time to dealing with this one disease. Arrangements have been made whereby a temporary hospital for the treatment of trachoma will be operated for an indefinite time with the hope that most of the cases found may have proper treatment and that an educational campaign may be carried on in the interest of trachoma prevention.

From time to time representatives of the State Board of Health have found cases of eye disease which they have thought to be trachoma, but there seems to be a very marked difference of opinion among oculists as to just what is and what is not trachoma. Because of this difference of opinion among men who should know, if anybody does, what constitutes trachoma, and because of the disposition of some of them to refuse to diagnose trachoma unless it has produced pronounced destructive symptoms or blindness more or less

complete, we are satisfied that a number of cases of the disease have failed to receive treatment which they should have had. The State Board of Health, unfortunately, has no eye specialist among its personnel and has heretofore been unwilling to put the opinion of its workers against the opinion of men who make a specialty of treating diseases of the eye. It does seem that the diagnosis of this disease could somehow be so standardized that even the doctor of ordinary attainment could be enabled to tell trachoma when he sees it. Some method should be devised for the diagnosis of this terrible sight destroying disease which would encourage doctors who see it to "stand hitched" on the diagnosis.

A few years ago it was found that trachoma had become very widespread in the mountains of Kentucky. The writer of this communication, being intensely interested in having all possible protection afforded for Tennessee, went into the Kentucky mountains and rode for miles over so-called roads and over mountain trails in order that he might have first-hand information about the situation. He saw, in cabin after cabin, whole family groups of infected persons and frequently saw individuals whose sight was sadly impaired. It was not unusual to find examples of the blind leading the blind. Kentucky made a very vigorous fight on trachoma and the prevalence of the disease has been greatly reduced. Conditions in Kentucky are parallel to conditions in Tennessee. If trachoma gets the start in this state which it gained in Kentucky, we may expect it to play the same havoc here.

"Follicular conjunctivitis"—whatever that is—is the goat that is made to bear the sins of trachoma in a great many instances. For the life of us we cannot see why any eye disease which appears to be infectious should not demand immediate and aggressive treatment, whether it be "follicular conjunctivitis" or any other sort of conjunctivitis. And certainly we cannot see the wisdom of splitting hairs about the treatment of any disease whose nature is such that one supposedly qualified man will call it trachoma, when another supposedly as well qualified will call it something else. One thing is very certain: Trachoma is a sight-destroying disease—even the mildest case has

potentialities of great evil effects. Why will it not be best to consider every case as possibly trachomatous and deal with it accordingly?

The real purpose of this writing, however, is to call the attention of the medical profession of this state to the fact that a heavy focus of trachoma has been found in Middle Tennessee; that numerous cases have been demonstrated in East Tennessee; and that the State Board of Health has found what it thought—and what it still thinks is trachoma in West Tennessee. The United States Public Health Service, with the co-operation of the State Board of Health, and with the help of the citizens of the splendidly progressive little city of Morristown, is operating a Trachoma Hospital at Morristown. Any citizen of this state can secure treatment for trachoma at that institution. It is hoped that physicians will refer such cases of trachoma as they may find in their practice, which can properly be sent to such an institution, to the Morristown hospital.

Look for trachoma. When it is found, don't temporize with it. See that every case gets the right sort of treatment. Report all cases found to the State Board of Health through county or municipal health officers. Warn your patients and the public of the dangers of trachoma, and give them instructions which will help them to protect themselves against it.

And, for pity's sake, let somebody find out what is and what is not trachoma and discover a way to tell the rest of us so we can diagnose the disease when he have really found it and have some hope of having the diagnosis being agreed to and supported.

INERT VACCINE.

There have been numerous complaints recently of failures to secure "takes" after smallpox vaccination, even in first vaccinations. The tendency seems to be to blame the vaccine in practically all cases. A little investigation of the matter appears to indicate, however, that the vaccine itself is not so greatly at fault, but that the methods of keeping vaccines and antitoxins in many drugstores

and the habit that many doctors have of wearing little boxes of vaccine around in their vest pockets for weeks at a time has a good deal to do with the lack of successful "takes." Then, too, a great many doctors buy a box of vaccine points or tubes and put them into their bags, which they deposit on the floors of their automobiles in the most favorable location to get the benefit, or rather the destructive effects of the heat that comes up through the floor from the engine, transmission, and other working parts of the machine. It also appears that in rare instances vaccines are improperly handled in shipping, being placed against steam pipes in express cars. Most producers, however, are developing methods of packing and shipping vaccines which will offer all possible protection against deterioration in transit.

Smallpox vaccine is easily destroyed, insofar as its potency is concerned, by being subjected to prolonged high temperature or by being subjected to repeated changes of temperature. That is why successful vaccination need not be expected after the use of vaccine that a physician has carried in his vest pocket for a week or two, or from vaccine which has been cooked in his bag on the floor of his automobile, or from vaccine which the druggist has kept in a convenient drawer or case near the stove or radiator. All vaccines and antitoxins should be kept by druggists in a refrigerator or other place where a constant low temperature can be maintained. If physicians will demand that of their druggists they will receive the products for use in such condition that desired effects may be confidently expected, provided the physicians themselves do not subject them to deteriorating influences.

Vaccination is a very simple operation. In fact, its very simplicity leads to error in technique, sometimes, which destroy all possibility of success. Nearly every doctor keeps in mind the possibility of infecting his patient in the operation of vaccination and for that reason uses a copious supply of alcohol or other antiseptic in the area to be sacrificed. It is forgotten, many times, that what will destroy or prevent certain infections will also destroy the potency of vaccine. To scarify an arm wet with denatured alcohol or some stronger

antiseptic is also to prevent the success of the vaccination.

Smallpox is abroad in the land. Vaccination is in order. It will be bad if, through neglect of common-sense precautions or through errors of technique, we should contribute in any way to lessening the confidence of the people in the protective benefits of vaccination.

WRITINGS BY DOCTORS.

Doctors have contributed very much more largely to the general literature of this great land of ours than is generally known and appreciated. They have produced creditably in the fields of fiction, poetry, history and philosophy, as well as in the realm of general science and medicine. It appears that in the earlier days of our nation's history and on until some thirty or forty years ago physicians wrote more generally on subjects not strictly medical than they have done in more recent years, but occasionally there comes to light some treatise from the pen of a doctor which deals with subjects not purely medical.

There has recently come to our desk a little booklet with the title "Haiti—The United States—The Negro," written by Dr. O. J. Porter, of Columbia, which has been read with much interest. Dr. Porter writes entertainingly upon any subject to which he addresses himself, and always takes a positive stand and maintains his position vigorously and courageously. In the little book here referred to Dr. Porter discusses various phases of the race question which has for years been a fruitful source of discussion and which seems just at this particular time to have become anew a subject for thoughtful consideration by all citizens who have the best interests of our nation at heart. The migration of the Southern Negro to the North during the years of the war, their return in large numbers to the more favorable environment of the South, the Japanese problem in California and other Western states, the tremendous importance of the proper regulations of immigration from European and other old-world countries—all of these are now and will long be factors in the determination of our country's history. Be-

cause of the immediate interest which attaches to any worth-while discussion of any phase of the race question. Dr. Porter's writing is very timely. We believe that the readers of this Journal will enjoy reading the views he has presented, and are very sure that they will receive from such reading a very decided stimulus to serious thought upon a most important subject, national in scope, which must some day be settled and settled right.

MEDICAL BIOGRAPHY, ET CETERA.

One who undertakes to make thorough exploration into the field of medical biography is soon overwhelmed in the immensity of his task, for the list of names of men who have by achievement earned for themselves distinction and honors which give them right to permanent record in medical history is indeed a long list. The story of the life and work of many an one of the pioneers of medicine is long enough of itself to require a whole volume—sometimes a great volume—for its telling, and of some of the outstanding figures of all the great discoverers many volumes have been written, each of which sets out the story of its particular subject in a different manner and each of which contains biographical material not to be found elsewhere. To one writer a man is great because of qualities which another writer seems not to have considered as playing any part in his greatness; to one the magnitude of one achievement entitled him who achieved to the homage of men, while in the eye of another that achievement is of small moment when compared with some other work accomplished by the subject of his writing. In one biography dates and names brought in by the way, and even the story of methods pursued and results secured by discovery, are altogether different from the statements found in another biography of the same man. And so it is that he who would make effort to select from all the list of the great soon finds himself confused and unable to decide, except in occasional instances, as to whom of them all is most entitled to greater honor; and confused, too, if he reads widely in the field of medical biography, to know which of all the many stories written of the

great is the correct story, and so most worthy of repetition and of permanent historical record.

As one reads the history of scientific discoveries in any field he can but be impressed with the fact that accident and even idle play have, in numerous instances, led to the establishment of fundamental truths in science. Just as the discovery of the principles of atmospheric pressure was based on the whim of an ancient Roman, which made him wish for a bath in an upper story of his palace, and which led Galileo and Toricelli to the performance of their experiments which proved the atmosphere to have weight and to exert pressure; and just as the discovery of the conductivity of certain materials was established in a moment of idleness by Sir William Gilbert, physician to Elizabeth, Queen of England; and just as the insulating properties of certain other materials were discovered and established, because of his vanity and love of display, when Sir William tried to demonstrate his first discovery to his friends; so many of the outstanding scientific facts of medicine have been stumbled upon by accident or as the result of observation which had been in no manner aimed at nor prepared for. We must, however, yield credit for the acuteness of the powers of observation to him who makes important discovery, even though it be made in an idle moment of play or because the opportunity for observation and discovery was entirely due to accident.

Some of the great men of medicine became great because of their wonderful native powers of observation. So was the greatness of the Father of Medicine, Hippocrates himself, attained. He had little of fore-made information handed down to him. As one writer has said, "He summed up in himself all that was known before, added immensely to the store by his own study and practice, and so handed on an almost newly constituted science to those who came after him." Hippocrates appreciated the importance of **symptoms** and paid most careful attention to symptoms, both those precedent and those present. How better would many practitioners of the present day succeed in diagnosis and in the intelligent treatment of disease if they would do like-

wise! To get the story of the development of symptoms, to observe the character of symptoms present, to analyze and correlate, to think and reason and observe symptoms and to dig out the explanations for their occurrence will go a long way further in making a good diagnostician and a good doctor than will a blind reliance on laboratory reports. Hippocrates had no laboratories to fall back on for help, but in acuteness of observation and accuracy of description he has been excelled by none that have come since his day in the ancient past. Most of the forms of disease which he described and to which he gave names still bear the names he gave them and his descriptions are, in many instances, superior in every respect to those which are to be found in widely circulated texts of the present day.

Hippocrates was the first to insist upon the importance of the influence of diet in disease as well as in health and it is written of him that he would often trust to the regulation of diet as his sole remedial procedure in treating disease, especially where his patient was possessed of a strong constitution. All that was taught by Hippocrates and all that has been learned and taught and tried and proven since his day has been absolutely in vain insofar as its effect upon many modern doctors are concerned, who pin their faith in all conditions and under all circumstances to medicine in the one case and to blind surgery in the other, when the right food properly prepared and properly administered would, many times, win health for their patients. This great ancient was, also, a strong believer in the restorative powers of nature, and while he was a great contributor to the *materia medica*, having added more than three hundred agents to the list, he was always disposed to place large confidence in the reparative work of nature. Pity 'tis that his teachings in this respect have not been more definitely learned and more strongly adhered to by and large by the physicians and surgeons of our own time. Incidentally it may be remarked that Hippocrates was not a "specialist"—he was doctor, surgeon and sanitarian. He was the first to treat anatomy as a science, is said to have had wonderful skill in the treatment of frac-

tures, and performed all manner of surgical operations known in his day and time.

Hippocrates was born on the little island of Cos in the Aegean Sea, of a family who had practiced the healing art for several centuries. His progenitors were of that group of priests who had gone out of and away from the great temple to Asclepios at Edipauras, where the *Aclepiadae*, disciples of Asclepios, and the first of which we have any definite history who made the practice of medicine their business in life, made their headquarters. He did not, however, pursue the methods nor hold to the practices of his forefathers, which were very largely based on superstition and which were closely allied with the methods of mysticism, but was intensely practical and confined himself wholly to rational methods and practice. The date of his birth is uncertainly recorded, but was about 460 B. C. He lived in the greatest age of Greece, with Herodotus, Socrates, Thucydides, Plato and others of the most famous philosophers of ancient times who made the history of ancient Greece a most glorious history. None of these attained greater fame than he, none were more honored in their own times, and to none of them has honor more eternal been given by the nations of the world which have existed since the ancient glory of their nation went out.

Hippocrates was a great traveler and went into whatever lands he thought might yield information which he could utilize to advantage in combatting disease and in protecting the health of the people. His fame spread through many lands and kings and nations offered him residence, subsistence and honors galore. He was much sought after as a citizen because it was known that he would reflect great honor on any nation in which he made his home. Rulers of foreign lands consulted Hippocrates and offered him immense gifts of money and jewels and even of towns for his services; nations called him to save them from pestilence; the people of the land in which Democritus, the "mad" philosopher, lived summoned him to attend that noted man and Hippocrates found Democritus to be the sanest man among them; the Athenians voted him a crown of gold, maintenance for him and his descend-

ants, and initiation into their mysteries, which last was an honor seldom conferred upon any outside their own immediate circle. But Hippocrates refused their gifts and their invitations and the remunerations offered him and told them all that he "prayed the Gods to give him not money and not pleasures, but good health and long life and a lasting fame based upon success in the practice of his art" for the benefit of mankind. We can but wonder "how far he would get" in this day and time, when "money down or absolutely in sight" is the motto that is held in the hearts of so many—and on the office walls of some—of our most influential and pretentious M. D.'s F. A. C. D. G.'s, etc. But Homer and Dante sung praises to Hippocrates and great poets since their time have continued to pour out songs of praise to him which will continue to sound through ages yet to come, while our present-day materialists will never be sung by any greater than Walt Mason or Luke Mc-Luke, and by them only as a class and not by name.

Hippocrates was the first "trust buster" of whom we have ever read in history. Strange to relate, the trust which he so rudely dissolved was all in his own family and had been for centuries. The priestly monopoly of the practice of medicine was forever ended when Hippocrates, the greatest reformer who has yet gotten his name into medical annals, not even excluding some of our great moderns whose names jump at us from almost every page of our journals and from all the pages of all kinds of circulars and reprints which burden our daily mail, published his work and his methods and his knowledge of medicine to all the world and threw open the doors to all who would enter upon the pursuit of medicine and who would subscribe to the "Oath," which of all the proven authentic writings of the great master seems to have become most obsolete, insofar as its observance is concerned in some places and among some men.

Hippocrates lived to a great age, variously stated at from 85 to 109 years, and died in Thessaly.

(To Be Continued.)

OUR DECEASED MEMBERS.

The number of deaths among members of the Tennessee State Medical Association during the past year has been unusually large. Unfortunately, the editor of the Journal receives no information concerning the deaths of our members except in rare instances, unless the newspapers which he chances to see make mention of them. We should like very much to have a memorial page in the Journal before the time of the annual meeting in April, on which shall appear the name of every member of the Association who has died since the last meeting. To this end we earnestly request each county secretary to send to the Journal the name of any deceased member of his society, together with such data as should appear on the proposed memorial page.

THE ANNUAL PROGRAM.

The annual meeting of the Tennessee State Medical Association is now only three months off. The meeting will be held in Nashville in April, as fixed by our by-laws. It is the privilege of any member of the Association who thinks that he can contribute anything of value to participate in the scientific program and it is the duty of our members to see to it that a good program is provided. The program must be very largely made up of contributions by our own men. It is desirable that those who wish to present papers should notify the secretary as early as possible and that they should send in the titles of their papers.

A splendid program was arranged for the last annual meeting at Chattanooga and those papers which were presented were of a very high quality. But few of those whose papers were on the program for the first day of the meeting were on hand when their names were called. There must be a first day. Somebody must read the first paper, and the second, and the third. All cannot appear on the morning of the second day, nor can all the essayists be accommodated with places on that part of the program which is put on at the evening session when there may be some added attraction. Then, too, there will be a third day and

somebody will have to appear on the program then.

There is no good reason why the program of the Tennessee State Medical Association should not be as fine as the very finest of them all. It can be and will be if our members who are capable of writing well and who have abundant material from their own experience from which to write will take part in making it so.

Some of the very best papers that have ever been presented at our annual meetings have been from members who live outside our larger centers, but it has of late years been almost impossible to secure such contributions. We hope that a part of the Nashville program will be provided by members from our smaller towns and we should greatly like to have some papers from real old-fashioned country doctors, as well as from our able men of whom we have so many in Tennessee cities.

OUR COUNTY SOCIETIES.

WILSON COUNTY.

The Wilson County Medical Society met at Lebanon on December 1, 1920, with a fine attendance. The program, according to the request of officers of the State Medical Association, was entirely devoted to the study of cancer. Dr. Herman Spitz, of Nashville, was the essayist and read a paper on "Cancer."

The following officers were elected for the year 1921: President, Dr. J. R. Doak, Watertown; Vice-President, Dr. J. S. Campbell, Lebanon; Secretary, Dr. Walter S. Dotson, Lebanon.

The Wilson County Medical Society has not missed a meeting this year. All members present today paid their dues for next year and I am sending you their names and a check for their dues hoping that we will be the first to report for 1921. We tried to be first last year, but found that one other county was ahead of us.

Members who have paid 1921 dues to date are as follows: W. S. Dotson, Lebanon; S. W. McFarland, Lebanon; J. S. Campbell, Lebanon; J. R. Bone, Lebanon, B. S. Rhea, Lebanon; L. L. Tilley, Lebanon, R. 1; J. R. Puryear, Lebanon, R. 2; M. H. Wells, Watertown,

J. R. Doak, Watertown; J. L. Davis, Watertown; J. J. McFarland, Lebanon, R. 4; C. V. Young, Lebanon. Please find enclosed check for \$56 for dues for twelve members and medical defense assessments for eight, as indicated.

WALTER S. DOTSON

Secretary.

December 1, 1920.

WHITE COUNTY.

The White County Medical Society met in regular session at Sparta on December 9, 1920, and had a splendid program on cancer, which was in the nature of a symposium. Papers were read by Dr. A. F. Richards on "The Precancerous Stage," by Dr. W. J. Breeding on "Inoperable Cancers," and by Dr. W. M. Johnson on "The Duty of the Profession to the People With Regard to Cancer." These papers were discussed with a great deal of interest and profit.

Officers for 1921 were elected as follows: President, Dr. D. R. Gist; Vice-President, Dr. S. T. Gaines; Secretary-Treasurer, Dr. A. F. Richards, all of Sparta.

The White County Medical Society is in good working shape and each member is interested in making the coming year a successful year.

A. F. RICHARDS, Secretary.

OBION COUNTY.

The Obion County Medical Society met at Union City on December 1, 1920, with the following members present: Drs. P. W. Prather, M. A. Blanton, B. F. Loring, K. R. Glennan, Swan Burrus, W. F. Roberts, J. B. Hibbets, J. D. Carleton, Jno. D. Adams, D. Boaz, H. W. Qualls, Ira Park.

Dr. K. R. Glennan read an excellent paper on "Cancer of the Stomach," which was freely discussed and case reports were heard.

The annual election of officers was held with the following elected: President, Dr. W. F. Roberts; Vice-President, Dr. J. D. Carleton; Secretary-Treasurer, Dr. Ira Park; Censor, Dr. J. D. Adams.

We are somewhat fearful that the increase in annual dues will make our road somewhat rocky this year, but will do our best to hold the present large membership. The splendid

co-operation which I know our president, Dr. Roberts, will give to this end will mean a great deal toward accomplishing this result.

Our town seems to be the camping ground of chiropractors. Is there no balm in Gilead? There is certainly some legislation which is badly needed. One matter that needs to be attended to is the setting of fees for medical witnesses. As it now is we are often forced to lose valuable time and the compensation is so insignificant that it is not worth calling for, or it is never allowed.

I shall be glad indeed to co-operate with the officers of the State Association in any way that my time and ability will permit. With best wishes for a good year's work, I am

Fraternally yours,

IRA PARK, Secretary.

MAURY COUNTY.

The Maury County Medical Society held its annual election of officers at the meeting in Columbia on December 13, 1920, and elected the following: President, Dr. Geo. Williamson, Columbia; First Vice-President, Dr. J. C. Morrison, Mt. Pleasant; Second Vice-President, Dr. Robt. Pillow, Jr., Columbia; Secretary-Treasurer, Dr. M. A. Beasley, Hampshire; alternate to State Medical Association, Dr. W. K. Sheddin, Columbia.

After the election of officers the action of the State Medical Association in increasing the annual dues from \$2 to \$4 was discussed at length and a resolution providing for an increase in the county dues to include the additional state dues and the medical defense assessment of \$1 was adopted by unanimous vote of the members present.

A program committee was appointed and arranged the following program for the first six months of 1921: January, "Borderline Psychoses," Dr. L. E. Ragsdale; February, "Acute Lobar Pneumonia—Its Diagnosis and Treatment," Dr. R. S. Perry; March, "Diagnostic Significance of Ear Pain," Dr. J. Wallace Wilks; April, "Some End Results of Gonorrhea," Dr. O. J. Porter; May, "The Management of Normal Labor," Dr. M. A. Beasley; June, "Diagnostic Significance of Focal Infection," Dr. Robt. Pillow, Jr.

A symposium on cancer had been arranged

for the December meeting, with Drs. Church, Williamson, Faucet and Pillow as essayists. Some of these gentlemen were not present, but the papers read were discussed at length and a most interesting meeting was had.

The next monthly meeting will be held on January 11, 1921.

M. A. BEASLEY, Secretary.

GREENE COUNTY.

The Greene County Medical Society met in regular monthly session at the Greeneville Hospital on December 6, 1920. After the usual preliminaries a most excellent paper was read by Dr. R. O. Huffaker on the subject, "The Signs of the Times as They Concern Doctors." Following the discussion of this paper the annual election of officers was entered into with the following results: Dr. W. T. Mathes, Greeneville, was elected President; Dr. S. T. Brunley, Greeneville, Vice-President; and Dr. M. A. Blanton, Baileyton, Secretary.

For the January program a symposium on cancer has been arranged for, with Dr. C. P. Fox and Dr. J. F. Lane as essayist.

We do not yet know how the changed dues will affect us, but fear that the increase will make it difficult to hold Greene County up to her former standard.

M. A. BLANTON, Secretary.

BLOUNT COUNTY.

The Blount County Medical Society held its annual election of officers at the December meeting at Maryville. Dr. J. T. Carson was made President, Dr. G. D. LeQuire, Vice-President, and Dr. F. A. Zoller, Secretary-Treasurer.

In the annals of our society the past year proved to be a period of noteworthy importance. With but one exception a meeting was held each week throughout the year, with a full quorum of members present at every meeting. The notable increase in the population of Maryville and Blount County during the last twelve months brought with it an added quota of medicos and specialists. These all promptly had their names enrolled as members of our society and their co-operation was at once enlisted toward making the society

better. New zeal and revived inspiration took hold on the old members and the result has been that great progress has been made.

The selection of our distinguished member, Dr. J. A. McCulloch, as President of the East Tennessee Medical Association was an honor appreciated by his home society as much as by himself.

The following is a summarized statement of the work of the past year:

Number of members, January 1, 1920, 14; number of meetings held during year, 51; average number of members present at meetings, 8.7; number of essays read, 22; number of clinical reports, 121; number of committees appointed, 16; number of clinics presented, 4; number of lectures, 2; number of members dropped, 2.

R. L. HYDER, President.

F. A. ZOLLER, Secretary.

Maryville, Tenn.

POLK COUNTY.

Below is a list of the members of the Polk County Medical Society for 1921, together with the names of the officers elected for the coming year:

Drs. C. W. Strauss, T. J. Hicks, A. W. Lewis, W. Y. Gilliam, E. M. Akin, H. P. Hyde, Copper Hill, W. W. Kimsey, L. E. Kimsey, F. M. Kimsey, A. J. Guinn, Ducktown; F. O. Geisler, Isabella.

Officers for 1921: President, Dr. C. W. Strauss; Vice-President, Dr. E. M. Akin; Secretary-Treasurer; Dr. F. O. Geisler; Censor, Dr. F. M. Kinsey; Delegate to Tennessee State Medical Association, Dr. C. W. Strauss; Alternate Delegate, Dr. H. P. Hyde.

Enclosed you will find check for \$55 for annual dues and medical defense assessments.

Very truly yours,

FRANCIS O. GEISLER,

Secretary.

December 8, 1920.

DECATUR COUNTY.

Dr. J. M. Crider was elected President and Dr. J. L. McMillan Secretary of the Decatur County Medical Society at the December meeting of that society.

DEKALB COUNTY.

It is with peculiar pleasure that we are able to record, among the first counties reporting for the new year, the names of five members of the DeKalb County Medical Society. This society was organized anew about a year ago and it is evident that its members intend to "stick on the job." At the annual election meeting at Smithville in December the following officers were chosen for 1921: Dr. G. M. Allison, President; Dr. L. D. Allen, Secretary-Treasurer. Dr. T. J. Potter, Acting Secretary for Dr. Allen, has sent in the names and dues for the following members: Dr. G. M. Allison, Smithville; Dr. L. D. Allen, Smithville; Dr. T. J. Smith, Silver Point; Dr. McPherson, Alexandria; Dr. T. J. Potter, Smithville.

GILES COUNTY.

The Giles County Medical Society, at its December meeting held in Pulaski, elected the following officers for 1921; President, Dr. Jo. B. Wright, Lynnville; Vice-President, Dr. John H. Morris, Pulaski; Secretary, Dr. C. A. Abernathy, Pulaski; Treasurer, Dr. A. W. Deane, Pulaski.

KNOX COUNTY.

At the regular meeting of the Knox County Medical Association held on December 28, 1921, the annual election of officers resulted in the selection of Dr. Louis D. Haun as President; Dr. R. V. Depue, Vice-President; Dr. J. C. Hill, Secretary-Treasurer, and Dr. A. L. Rule, Member of Judicial Council.

The Knox County Medical Society has grown to be a very strong organization and the work of the past year has been exceptionally fine. Weekly meetings are held, the program is always prepared carefully, all members are promptly and impressively notified of the meetings and as to what subjects will be discussed, discussions are free and full, and an atmosphere of real interest is always in evidence at the meetings. The annual dues of this society are an even ten dollars. The Secretary, Dr. Jesse C. Hill, is always right on the job and we know, from expressions we have heard from the members, that his services are duly appreciated. One evidence of

this is to be found in the fact that he was re-elected.

HAMILTON COUNTY.

At the regular meeting of the Chattanooga Academy of Medicine and Hamilton County Medical Society, held on December 5, 1920, officers for 1921 were elected as follows: President, Dr. Jno. B. Steele; Vice-President, Dr. Willard Steele; Secretary-Treasurer, Dr. H. P. Larimore; Censor (for three years' term), Dr. E. B. Wise (re-elected).

The annual society banquet will be at the Hotel Patten on Friday, January 14, with Dr. G. Manning Ellis as master of ceremonies. The banquet committee is Dr. J. H. Revington, Chairman; Drs. J. C. Eldridge, Jr., S. H. Long, Jos. W. Johnson, and H. H. Hampton. Dr. E. Dunbar Newell is Chairman of the Program Committee and has fourteen associates. The 1921 program will be a very strong one. Several out-of-state visitors have already accepted invitations for papers.

H. P. LARIMORE, Secretary.

Editor's Note: The Chattanooga Academy of Medicine and Hamilton County Medical Society is a smooth running, efficient organization, and much of the credit for its satisfactory condition and for its good work is due to the most efficient work of its Secretary, who has now been re-elected for another year. We do not know just how many years Dr. Larimore has served his society, but we do know that he is one of the very best secretaries on earth.

MONROE COUNTY.

Twelve members of the Monroe County Medical Society have been reported for 1921 enrollment. At the regular meeting on November 9, 1920, officers for the new year were chosen as follows: President, Dr. Berry T. Crofts, Tellico Plains; Vice-President, Dr. J. A. Hardin, Sweetwater; Secretary-Treasurer, Dr. B. W. Bagwell, Madisonville. Members who have paid dues and have been enrolled for 1921 are as follows: Drs. H. C. Shearer, R. C. Kimbrough, B. W. Bagwell, Madisonville; L. D. Barnes, J. A. McCollum, Vonore; J. A. Hardin, W. A. McLain, T. M. Arrants, T. M. Roberts, Sweetwater; B. T. Crofts, C. S.

Jenkins, Tellico Plains; W. W. Leonard, Mount Vernon.

B. W. BAGWELL, Secretary.

MEMPHIS AND SHELBY COUNTY.

The Memphis and Shelby County Medical Society breaks a record every year. The last year has been the biggest yet with this society. We have not yet been advised as to the election of 1921 officers, except that Dr. Joel J. Hobson, who has made a splendid record during the past year, has been succeeded as Secretary by Dr. Percy H. Woods. The work of the secretary of this society is a heavy work and it appears to be the policy of the organization to choose a new secretary every year. The selection of Dr. Woods insures a continuation of the very fine record that has been made by his predecessors in this important position and a continuance of good work by the society.

ANDERSON COUNTY.

At the January meeting of the Anderson County Medical Society, held at Clinton, Dr. H. D. Hicks, Clinton, was elected President and Dr. S. B. Hall, Clinton, Secretary. Dr. Hall was also chosen to represent his society in the House of Delegates of the Tennessee State Medical Association.

SMITH COUNTY.

Dr. B. J. High, Secretary of the Smith County Society, is one of the most dependable of all our county secretaries. He always gets things done in time and always has his reports in when they should be in. Promptly on January 1 the report of the Smith County Medical Society for 1921 came to hand, with a list of all paid up members and all of their addresses, together with a check for annual dues and medical defense assessments for all members availing themselves of this feature.

Dr. W. B. Dalton, Gordonsville, is the new President of this society and, of course, Dr. High was re-elected Secretary-Treasurer. Members who had paid dues up to the time of Dr. High's report are as follows: Drs. J. J. Beasley, Pleasant Shade; I. H. Beasley and R. E. Garrett, Dixon Springs; J. J. Bridges, New Middleton; J. H. Chism, Carthage; L.

D. Cotten, Alexandria; W. B. Dalton and J. C. Mooney, Gordonsville; C. H. Davis, Lancaster; B. J. High, Elmwood; R. E. Key, Monoville; F. W. Brownfield, temporarily in Chicago. Dr. J. B. Neil and Dr. J. C. Fly have removed from the county and their names will be sent in as members of the societies in their respective new locations.

DAVIDSON COUNTY.

The Nashville Academy of Medicine and Davidson County Medical Society held its annual meeting at Nashville on January 4, 1921, and elected officers for the year. Dr. O. N. Bryan was made President, Dr. J. P. Keller, Vice-President, and Dr. Jack Witherspoon was re-elected Secretary. Delegates and alternates delegates to the State Medical Association were also chosen.

After the meeting, the members of the society adjourned to the main dining room of the Tulane Hotel and spent a most enjoyable hour or two in disposing of a good dinner and talking things over. The President, acting as toastmaster, then called upon Dr. S. S. Crockett, who reminisced in a very charming way, recounting the deeds and virtues of the men of the years that are gone, and drawing some rather impressive comparisons of things past and things present. Dr. Eugene Orr was then called out and made a scintillating talk which surprised and delighted his hearers—surprised them because none knew before just how well he could talk until he got this chance to show them, and delighted them because his talk was full of very charming and sparkling humor. Dr. George H. Price, the orator-emeritus-par-excellens of the universe, was next introduced by the toastmaster and delivered a very remarkable oration, in which the star dust of the top-most skies and the glittering coral of the deepest depths of the ocean were gathered and distributed throughout the atmosphere in a truly marvelous fashion. Dr. Price's deliverance was really a most eloquent tribute to America, and was one of the finest bits of impromptu speaking that has ever been heard upon any similar occasion. Dr. Deering J. Roberts, the oldest member of the Nashville society who participates actively in the work

of the society, was next presented and, after graceful tribute had been paid him by the standing of the entire company and by an outburst of applause, made a most interesting and inspiring talk, during which he paid touching tribute to the medical service of the Army of the Confederacy, in which he himself served with distinguished ability.

TIPTON COUNTY.

Dr. J. F. Myers, Secretary of the Tipton County Medical Society, has forwarded a partial report for his society. We have not yet been advised as to the 1921 organization of this society.

DYER COUNTY.

At the last meeting of the Dyer County Medical Society the following officers were elected for the ensuing year: Dr. J. B. Berry, Dyersburg, President; Dr. B. G. Marr, Dyersburg, Vice-President; Dr. R. L. Motley, Dyersburg, Secretary-Treasurer.

The Society approved the increase of the annual dues of the State Medical Association without a dissenting voice. I feel sure that not a member will be lost from Dyer County by reason of the increase. Please find enclosed check for \$44 for 1921 dues for the following members: Drs. T. D. Rice, Tigrett; A. H. Moody, E. H. Baird, J. P. Baird, O. Dulaney, J. G. Price, W. P. Watson, J. B. Berry, John Cook, all of Dyersburg; J. W. Wynne, Newbern; L. B. Hill, care Highland Hospital, Asheville, N. C.

I feel sure that I will have an equal number of names to report shortly.

R. L. MOTLEY, Secretary.

WISCONSIN RESOLUTIONS.

The State Medical Society of Wisconsin, as shown by the adoption of resolutions printed below, is in favor of the national license to practice medicine and is against the indiscriminate writing of prescriptions for liquor. These resolutions have been sent to all the various state medical associations and we feel that the members of the Tennessee society will be interested in them. It does seem that there is little occasion for having forty-eight examining boards in this country and that some meth-

od could be worked out that will permit a man qualified to practice medicine in one state to practice in another without having to submit to examination. This would, of course, necessitate a standardization of medical practice acts in all the states, a thing which should not be beyond possibility of accomplishment.

Resolutions Adopted by the House of Delegates of the State Medical Society of Wisconsin at Its Annual Meeting in La Crosse, Sept. 8-10, 1920.

FIRST.

Whereas, in our forty-eight states there are as many separate examining boards; and

Whereas, licensed physicians in one state may not always practice in other commonwealths without vexatious procedures; and

Whereas, the practice of medicine is uniform throughout the length and breadth of the land; therefore be it

Resolved, that it is the opinion of the House of Delegates of the State Medical Society of Wisconsin that the right to practice medicine in one state should be extended to include the right to practice medicine in any part of the United States.

SECOND.

Whereas, the practice of indiscriminate prescribing of liquor by some members of the medical profession on the mere request therefor, and without regard to the need of the individual, is bringing our profession into disrepute; and--

Whereas, the State Medical Society of Wisconsin as a body desires to affirm its wish that all its members shall render strict obedience to the laws, whatsoever they may be; therefore be it

Resolved, that the State Medical Society of Wisconsin as a body condemns all and every effort on the part of the medical profession to take unfair advantage of the privileges to the physician under the law by the indiscriminate granting of prescriptions for the purchase of alcoholic stimulants.

THIRD.

Be it further resolved, that copies of the above resolutions be sent the proper officers of all State Medical Associations for such action as they might see fit to take.

Respectfully submitted.

ROCK SLEYSER, M. D., Secretary.

Wauwatosa, Wis., October 19, 1920.

NUTRITION OF WAGE-EARNERS DURING AND AFTER THE WAR IN RELATION TO PELLAGRA MORTALITY.

Recent studies of the United States Public Health Service appear to have shows that in the South low family income and the unavailability of certain food supplies are the chief factors influencing pellagra incidence among wage-earning groups.* Such conclusions are apparently consistent with the conditions found to prevail among the wage-earners insured in this Company. In a study of pellagra mortality in the Industrial Department of this Company for the years 1911 to 1916,** it was shown that the adverse economic situation late in 1914 and early in 1915 was accompanied shortly thereafter by a marked increase in the pellagra death rate. In 1916, when business conditions in the South improved, the death rate from pellagra dropped. The more recent data of the Industrial Department show, however, that in 1917 and in 1918 the pellagra death rate rose over the 1916 figure. This increase was observed both for males and for females, and among both white and colored groups. It should be recalled that during these latter years there was a marked shrinkage in the purchasing power of the dollar, and that wage increases had not as yet occurred to the extent of offsetting the decline in the goods value of money. Nor had sufficient time elapsed since the wage adjustments of 1917 and 1918 to affect the pellagra rates of those years. By the spring of 1919, however, the 100 per cent or greater increase in wages of cotton mill operatives, plus steady employment, must have had a beneficent effect upon family dietaries. For the whole of 1919, the pellagra death rate was as low as 2.3 per 100,000, or 66 per cent below the high rate in 1915, and 36 per cent under the 1916 and 1911 rates.

*Goldberger, Joseph; Wheeler, G. A.; and Sydenstricker, Edgar. "Economic Factors in Pellagra Incidence," United States Public Health Reports, Nov. 12, 1920, p. 2637.

**"Mortality Statistics of Insured Wage-Earners and Their Families," Metropolitan Life Insurance Co., 1919, p. 255.

It will be of great interest to observe whether the present economic depression involving workers in the cotton-textile industries will bring about, through restriction of family diet, another increase in the pellagra death rate. Much weight must be given to the explanation offered by the United States Public Health Service, if a high degree of association is established between pellagra mortality and an index of economic welfare in the pellagra areas. Due allowance must be made, of course, for the "lag" between the point of maximum incidence of the disease and the point of maximum business depression. In order that students of the problem may be able to relate data on the economic welfare of the Southern wage-earner to the facts of pellagra mortality, the following table is quoted:

Death Rates Per 100,000 from Pellagra—By Color and Sex for Single Calendar Years, 1911 to 1919, Metropolitan Life Insurance Company, Industrial Department.

Year.	Persons.	White		Colored	
		M.	F.	M.	F.
1919	2.3	.8	2.0	3.5	12.7
1918	4.5	1.7	4.0	7.4	22.8
1917	4.1	1.5	3.5	5.8	22.2
1916	3.6	1.4	2.7	6.2	22.4
1915	6.7	2.1	5.9	12.2	36.6
1914	5.3	2.2	4.7	6.9	26.7
1913	3.3	1.3	3.4	4.6	13.1
1912	2.8	1.2	2.6	4.1	12.5
1911	3.6	1.7	4.1	3.4	10.5

—From Bulletin of Metropolitan Life Insurance Company.

NEW MEMBER OF BOARD OF EXAMINERS.

The appointment of Dr. H. W. Qualls, of Union City, to membership on the State Board of Medical Examiners has been announced by Governor Roberts. Dr. Qualls succeeds the late Dr. Ambrose McCoy on this Board.

Dr. Qualls is a member of the Obion County Medical Society and the Tennessee State Medical Association, and has been engaged in the practice of medicine in Union City since his graduation from the Vanderbilt University School of Medicine in 1912. He is a young man with an active interest in medical and social affairs, energetic and progressive, who puts determined effort into whatever he

undertakes. In the place in which he has been chosen to serve, he will be in position to render valuable service to the medical profession and to the people of this state. He will have the good wishes of a large number of interested friends in his work as a member of a most important administrative body of the state's machinery for safeguarding the public welfare.

DR. AMBROSE MCCOY.

Doctor Ambrose McCoy, for a number of years President of the Tennessee State Board of Medical Examiners, and long a member of the Madison County Medical Society and the Tennessee State Medical Association, a physician known and loved by many friends in all walks of life in his section of the state, died at his home in Jackson during the last week in December. An account of Dr. McCoy's life and work as a Tennessee physician will, we hope, be presented by some one in position to prepare it accurately and to pay fitting tribute to his memory.

MISCELLANEOUS

TAKING MATTERS TO THE BOSS.

Dr. W. K. Vance, Secretary of the Sullivan-Carter-Johnson County Medical Society knows very well who is boss in the average doctor's family and, as will be seen from reading the letter printed below, is taking advantage of his knowledge in this respect to keep his society up to the notch. Last year, after tiring of sending letters direct to a lot of doctors only to have them ignored, Dr. Vance began to go to headquarters with his appeals and got results. We are reproducing his letter this year in order that other county secretaries may have it before them for their guidance if they feel it is necessary to adopt the method.

Dr. W. W. Vaught, Pres. Dr. G. E. Campbell, V. P.
Dr. T. F. Staley, V. P. Dr. J. R. Butler, V. P.
SULLIVAN, CARTER AND JOHNSON COUNTY
MEDICAL SOCIETY.

Dr. W. K. Vance, Secretary-Treasurer.
Meets First Wednesday Each Month.

Britsol, Tenn., Nov. 27, 1920.

My Dear Mrs.-----

The "cold, chilly winds of November" are again with us, which reminds me that it is again my duty and privilege to send a report on each known physician in the counties of Sullivan, Carter and Johnson to his wife and request her aid in trying to get him, if he is not already doing so, to perform a duty he owes himself, his family and his profession by becoming an active member of his County Medical Society. Kindly say to him that the last meeting of his County Society for the year 1920 will be called to order at 12 m. on Wednesday 1, at Hotel Virginia.

By request of the President and Secretary of the State Medical Association the subject for consideration at this meeting will be Cancer. Two papers will be read on this important subject. One of them will treat of cancer from the standpoint of the dentist and will be read by Dr. Gordon Barkley, D. D. S., one of the most competent and progressive dentists of our city. The other from the physician's and surgeon's standpoint, will be presented by Dr. W. K. Vance, Jr.

It is desired that we have a large attendance at this meeting, not only on account of the importance of the subject under consideration, but for the further reason that this is the annual meeting for the election of officers for the coming year.

Notwithstanding the apathy of quite a number of the physicians of the three counties represented the society has had a prosperous year and is looking forward to the coming year with confidence and bright anticipation.

Has your husband done his part in keeping his County Society on a par with the other County Societies of his State? After inspecting his grade let his and your conscience decide. I place an X opposite the grade he has made.

He has ----- paid his annual dues.

He has attended ----- meetings.

He is now in arrear for dues -----.

He has never been affiliated with his County Society.

I hope he will honor us and himself by being present at this meeting and if not a member become one. If in arrear for dues please have him there and order him to pay up and be reinstated.

Very truly,

W. K. VANCE,
Secretary.

THE RED CROSS WANTS MEN.

The following letter has been received by the Journal and is reproduced here in order that any who are so disposed may look into the offer that is presented.

December 13, 1920.

The American Red Cross is desirous of enlisting for service among the children of Eastern Eu-

rope a number of medical men.

The service is particularly suitable for recent graduates of hospitals who are more or less free to spend a year in the practice of their profession in Europe.

The remuneration will be sufficient to represent an adequate salary and living expenses. All transportation will be furnished.

These men are needed within the next few weeks. Please address at once, giving age, details of education and medical experience to

CHARLES W. BERRY, M. D.,
American Red Cross, 44 East 23d Street, New York City.

CONTROLLING ANESTHESIA.

When a solution of a local anesthetic is injected into a tissue its effect is limited by the rapid dispersion of the fluid; that is, the fluid is absorbed and carried off by the circulation, and the anaesthesia is of short duration. True, the surgeon can control this condition when operating upon an extremity, as a finger, by throwing a ligature around the member, but even that procedure is open to objection.

If a means could be devised to hedge about the area of operation without engorging the tissues, such a device would be in insistent demand. No mechanical invention has yet offered itself, but we have an almost perfect check on the rapid absorption of the anesthetic in Adrenalin. This substance is readily soluble; it is compatible with all local anesthetics, physically, chemically and physiologically; and it is not irritant. Furthermore, it controls hemorrhage and, in operation on the mucous membranes, affords the operator a clear view of the field. By limitation of the absorption of the anesthetic it is possible to do an operation with less of the drug, and thereby the risk of toxic effect is minimized.

This subject is dealt with more at length in the advertising section, where the reader will find the fifth of the series of this journal. A perusal of the article and its preservation for future reference are suggested.

NOTES AND COMMENT.

The most dangerous job in the world is that of being a baby. The baby has less chance to live a week than a man of ninety; less to live a year than a man of eighty or than an

aviator who makes daily flights. Six babies die to one man in the trenches.

It has recently been shown that orange juice possesses something more than an attractive flavor and antiscorbutic virtues in infant feeding. The antineuritic vitamine, water soluble B, is contained in both juice and peel.

At the recent meeting of the American Association of Railway Chief Surgeons the startling announcement was made that four recent wrecks had been traced to engineers suffering with paresis. Fifteen years too late!

They are looking for alcohol everywhere. Back in 1913 it was discovered in the spinal fluid, but the announcement did not occasion much interest. Now, it is different, and it would not be surprising to hear of routine spinal punctures becoming the universal procedure.

A Baltimore lawyer has put a quietus on the narrow-gauged Sabbatarians by declaring a church having a paid choir and a man who is driven to church by his chauffeur would be violators of the proposed rejuvenated "blue laws."

In hypochondriacs who should not know the facts, in timid patients, children and hysterics, the body temperature can be fairly accurately ascertained from freely voided urine.

A feeble-minded girl in one of our state institutions killed another over "who served the coffee." Is it not time that Tennessee segregate the irresponsible and protect the unprivileged—and the rest of us?

Syphilis is costing the taxpayers of Tennessee \$100,000 per year in only five of its state institutions. This sum will certainly increase unless some organized means of prevention is given the people of the state.

There is more than a joke in the story of the man who drove to his home with the doctor on a fake call, paid the price of a professional

visit and thereby saved ten dollars auto hire.

The law of supply and demand is over with us. Who is going to supply the demand for the family doctor who will take his pay in potatoes, corn or a calf?

It was because a few cows refused to drink from a certain spring in England way back in 1618 that we were given our tried and true friend, Epsom salt.

BOOK REVIEWS.

1919 COLLECTED PAPERS OF THE MAYO CLINIC. Octavo of 1331 pages, 490 illustrations. W. B. Saunders Company, Philadelphia. Cloth, \$12.00 net.

This is Volume XI of the Collected Papers of the Mayo Clinic at Rochester, Minn., and is a most valuable publication because of the source of the material it contains and also because of the remarkable range of subjects covered. From scalpel sharpening and the use of turpentine as a "foam breaker" to the clinical identification of thyrotoxin; from a presentation of the possibilities of the National Medical Museum to an address on "Socialization of Medicine and Law;" from a discussion of foreign bodies of dental origin in a bronchus to studies on elective localization; from the surgical treatment of cysts of the thyroglossal tract to surgical treatment of the bleeding type of gastric ulcer; on and on, medicine, surgery, anatomy, physiology, bacteriology, pathology, chemistry, social medicine, and nearly all things else that can be discussed and presented for the consideration of the medical profession are taken up somewhere in these collected papers. This is probably one of the very best of the volumes of like nature which have come from the Rochester institution.

PRACTICAL MEDICINE SERIES. Volume II, 1920. General Surgery. Edited by Albert J. Ochsner, M. D., Surgeon-in-Chief Augustana and St. Mary's of Nazareth Hospitals; Professor of Surgery in Medical Department of the State University of Illinois. The Year Book Publishers, Chicago. Eight volumes a year; \$12.00.

This is the usual splendid review of literature on surgical subjects, such as is generally

to be found in the volume devoted to surgery in the Year Book. Considerable space is given to anesthetics and analgesics, to **Wound Healing and Pathologic Interventions**, and to the consideration of malignant tumors, and a very complete review of the surgical literature of the year 1919 and some part of 1918 is presented.

Volume III. Eye, Ear, Nose and Throat. Edited by Casey Wood, M. D., Albert H. Andrews, M. D., and George E. Shambaugh, M. D.

In this volume of the Year Book is to be found a very comprehensive review of the most important literature on the subjects represented in the special fields that are supposed to be covered in a book of this nature. More than ordinary attention is given to general diseases as related to affections of the eye.

Volume IV. Pediatrics. Edited by I. A. Abt, M. D., and A. Levison, M. D., Chicago. Orthopedic Surgery. Edited by T. W. Ryerson, M. D., and R. O. Ritter, M. D., Chicago.

This volume is fully up to the Year Book standard and covers well the literature of the year of both of the subjects considered in this volume.

This new edition of an already and deservedly well-known book, the third edition since its first appearance in 1918, has been materially altered to include a number of the more recent developments in physiology and biologic chemistry. In his preface the author states that the section on the nervous system has been entirely rewritten, that recent work on the chemistry of chemistry and on cardiac functional capacity has been incorporated and that several new chapters have been added.

As a whole this book has much to recommend it. It is admirably adapted to the wants of physicians who have felt the need of an authoritative and compact connecting medium between the fundamental sciences of physiology and biologic chemistry and of functional performances in internal medicine. The work is divided into nine parts covering The Physicochemical Basis of Physiological Processes, The Circulating Fluids, Circulation of the Blood, Respiration, Digestion, Excretion of the Urine, Metabolism, The Endocrine Organs, and The Central Nervous System and Control of Muscular Activity, and each part is followed by a bibliography of some of the more important monographs and original papers. The chapters dealing with cardio-vascular phenomena, respiration and metabolism are particularly comprehensive and their careful perusal should be of great usefulness to any earnest student of the present day aspects of really modern internal medicine.

R. C. D.

PHYSIOLOGY AND BIOCHEMISTRY IN MODERN MEDICINE. By J. J. R. McLeod, M. B., Professor of Physiology in the University of Toronto, Toronto, Canada; formerly Professor of Physiology in the Western University, Cleveland, Ohio; assisted by Roy C. Pierce, M. D., A. C. Redfield, M. D., and N. B. Taylor, M. D., and by others. Third Edition. 992 pages, 243 illustrations, including 9 plates in colors. Silk cloth. Price, \$10.00. St. Louis: C. V. Mosby Company, 1920.

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NUMBER 10

A SKETCH OF THE LIFE OF DR. J. MARION SIMS.*

By J. M. King, M. D.,
Nashville.

James Marion Sims was born near Lancaster, S. C. near the birthplace of Gen. Andrew Jackson, January 25, 1813, and died suddenly of heart disease at his home, 267 Madison Avenue, New York, November 13, 1883.

He was about five feet eight inches in height, his figure well moulded and, though delicate, yet not without some degree of robustness. His carriage was erect, with somewhat of a military bearing, and his step was quick and well measured. His face was oval, his nose approaching the Grecian type. He had clear but deep-set eyes, which were like the original color of his hair, of a deep brown. His brows were heavy and well curved. His mouth was admirably formed, the lips being of a medium fullness, the lower lip somewhat the fuller indicating decision of character. His smile was one of kindly sweetness. His head was rather below than above the average size, and its unusual height in proportion to its circumference pointed to his Gaelic origin, for, through his mother, the blood of the MacGregors of McAlpin coursed full proof in the veins of their descendant.

He was brave without being aggressive, though always ready to assert the courage of his convictions. His manliness of nature

was joined to the most tender sensibility and trusting simplicity—the strong pinions of the eagle folded around the warm heart of the dove. The inner man is best revealed in an extract from a letter to his wife in 1854, when he was laboring to establish the Woman's Hospital. He says: "Next to you and our children stands in my affections the success of this glorious mission. When I look into my heart I do not see that my motives are at all selfish. The only selfishness that I feel is the desire to do good, to be a benefactor of my race, and I sincerely pray that my labors may be blessed so far as they tend to relieve suffering humanity, to advance the cause of science, and to elevate the condition of the medical profession. You can understand me. The world may not. It is a glorious thing to feel that you are above the dross and glitter of mere pageantry. Money is trash and may be blown away by the wind. Honors are evanescent and may be snatched by another. Even reputation may be tarnished by the slanderous tongue of an envious villain, but the proud consciousness of rectitude, coupled with true benevolence, lives in the heart of its possessor and is as immortal as the soul itself."

His tout ensemble suggests in all respects Sir John Bell's ideal of the qualities in a truly great surgeon, "the brain of an Apollo, the heart of a lion, the eye of an eagle, and the hand of a woman." This man attained such distinction that he was as much appreciated in the salons of European society where his merits made him the petted favorite and envied recipient of royal honors, as he was the distinguished cynosure in the arena of professional effort. Almost un-

*President's address to the Middle Tennessee Medical Society, November 18, 1920.

equaled in polished refinement and gentle fascination of manner, no one could be brought within the sphere of his magnetic influence without feeling the attraction and acknowledging the presence of an extraordinary being.

In 1861, when the new building for the Woman's Hospital was to be erected, Dr. Sims visited Europe to study hospital construction. His arrival was everywhere heralded by encomiums of praise for his valuable discoveries and surgical skill, and he received from the profession in all the large cities and hospitals of Europe such a welcome as has never been given to a medical man. Dublin, London, Paris and Brussels were each in turn the theatre of his surgical triumphs. He operated in nine different hospitals in London, and perhaps a greater number in Paris. His successes were so noted and brilliant that he speedily received decorations from the governments of France, Italy, Germany, Spain, Portugal and Belgium as a public benefactor. He received two medals from the government of Italy. From France he received the order of the Knights of the Legion of Honor; from Belgium the order of Leopold I, and from Germany the Iron Cross.

It is my feeling that this man, one of us of the South, who attained such unusual distinction and whose works and achievements mark an epoch in medical history, should be more intimately known to us of this society, so I have selected his life as the subject of this brief address, using freely the story of his life and addresses made by members of the profession in memoriam. It is an inspiration to read the story of his life.

His boyhood setting, surroundings and association were those of the average Southern country boy of that time. His father, uneducated, was a small farmer, slave-owner and store-keeper. He was a fine marksman, was a colonel of the local regiment, a fox hunter and a cock-fighter, and later was sheriff and tavern-keeper at Lancaster. His mother was an excellent woman, of Scotch blood, and of some education. There were several children in the family. As a boy he was timid and bashful, yet bright, lovable

and courteous, but nothing precocious or anything pointing to a great future. He stood well in school. His first teacher was a Scotchman, and the next two were Irishmen. His first American teacher was brought to Lancaster from Washington, Pa., and with him he began his classical training. Having finished the course at the Lancaster Academy, his father, anxious for him to have a higher training, sent him to the South Carolina College, Columbia, S. C., from which he graduated in 1833.

All of his life he manifested a subdued vein of humor, and was always ready for a good-natured prank and joke. During his academy days one of the boys, Ward Crockett, would take the master's seat during play-time and study his lessons while all the others were out at play. Some of the students didn't like this; so one day Frank Massey went to Marion and said: "I want to break up that Ward Crockett business. You see this pin. I will take Crockett to the well and I want you to fasten this in the master's chair." Marion fixed it well and firm, so it would stand straight. Coming back from the well Crockett was attracted by the ball game and did not get back to the chair before the master called "books." The teacher called the class before him to recite, and he was walking up and down the room hearing the recitation, when he went to his chair to sit down. He went down in the chair, but he flew up like a rocket. His head almost struck the ceiling. The school was in an uproar at Mr. Connelly's gymnastic feat. Only two boys knew who placed the pin, but the teacher suspected one of the three. So he began at the head of the class and said: "Rush Jones, did you put that pin in my chair?" Rush said, "No, sir." Marion was standing in the class and said to himself, "My God, if he asks every one separately about that pin, what will become of me?" When he got down close to him, Marion thought: "Good heavens, I must tell the truth." When Mr. Connelly came to him he addressed him mildly: "Marion, did you put the pin in the chair?" Marion replied, "No, sir," timidly. The pin remained a mystery. Twenty-eight years after that,

when Dr. Sims was living in New York City, he heard that a Rev. Mr. Connelly was preaching in Newburg, N. Y. He wrote him and asked him if he was the Connelly who taught school at Lancaster. He said that he was the one, and would call to see him. So one evening at dinner while Mr. Connelly was there, the children at the table began to laugh and titter. Dr. Sims asked what they were laughing at. One said, "Oh, nothing; but isn't that the man whose chair you put the pin in when you were at school?" For fear that Mr. Connelly heard the child's remark, Dr. Sims told him all about the pin. Mr. Connelly took it in bad humor, saying he was the last boy in school he would suspect, and never visited him again.

While in South Carolina College young Sims was a model student. He did not have a single bad habit—he did not swear, drink, or gamble. He tried to drink, but a small glass of wine would make him so drunk that two boys would have to take him to his room. The effect was so bad that he explained to his classmates that he would have to give up the idea of learning to drink. He had a great aversion for writing essays in college. He did not feel that he was competent, but four essays were required for his graduation. In his last year in college, he received a visit from "Sheriff Jim," a name given by the boys to the negro porter, who notified him to report to the professor of literature. He followed Jim with fear and trembling. The professor said: "Mr. Sims, you have been a good student, but you have failed to hand in your four essays required for graduation." Marion told the professor that he could not write them, that he did not feel competent to do so. The professor finally agreed to let him off if he would write only two. Marion decided that he could not and would not write any, even if he failed at graduation. One of his classmates having seen "Sheriff Jim" take Marion to the professor, went over to see what was the trouble. The final outcome was that his classmate wrote two essays on memory, called "Sheriff Jim," and sent them to the professor with the compliments of J. Marion Sims.

After his graduation he returned home.

His education, according to the prevailing sentiment at that time, unfitted him for a commercial life, which he had always wanted to follow. A college graduate was expected to study for one of the professions. His father opposed his mercantile ambition, but wanted him to study law. Marion said he couldn't be a lawyer, and he could not make a preacher, so he was compelled to study medicine. His father had sacrificed much to give him a classical education with the view of his studying law, so he was greatly disappointed and made all fun of doctors. Finally he became reconciled to Marion's idea and sent him to Dr. Churchill Jones, of Lancaster, a distinguished surgeon of his time, and from him he imbibed the idea to be a surgeon if he ever got to be a doctor.

On November 13, 1833, he went to Charleston, S. C., to begin his course in the Charleston Medical College. He was captivated by the lectures and teachers and was diligent in his studies. But I must quote his own words to show you how he felt: "I had failed in my duty as a student at Columbia; the responsibility of life was doubly on me, and weighed heavily on my shoulders. I looked forward with dread—I was afraid to be a man; I was small in stature, and I was afraid to assume its responsibilities, and thought that I did not have sense enough to go out into the rough world, making a living as other men had to do."

In Charleston he was happily located in a cultured family. He worked hard and decided to go to Jefferson Medical College for his next course of lectures, and try for graduation. In the fall of 1834 he spent a week in getting to Philadelphia, and found a boarding house opposite the college, at four dollars a week. Later on he made acquaintances through whom he secured room and board in Miss Edmond's boarding school for girls, where he had the best association with the teachers and young ladies of the school.

During the course at Jefferson College a cadaver that had died from smallpox was brought into the dissecting room. Several students contracted the disease, and some died. Dr. Sims says that he was always taken for more than he was worth. He was

honored by being selected out of the large body of students at Jefferson to deliver an eulogy in commemoration of the young men who had died from smallpox, and while at Charleston the students held a meeting in his absence and elected him class valedictorian. But he says in both instances he felt his incompetency and had the good sense to decline both honors.

He enjoyed his work at Philadelphia, and during the year he was frequently honored by the great surgeon, Professor McClellan, the father of Gen. George B. McClellan, with an invitation to assist him in surgical operations. He graduated in March, 1835, but feeling so unprepared to take up practice, he took thirty additional lectures on "Regional and Surgical Anatomy." When he left college he could cut down on any artery in the body but he knew nothing of the practice of medicine.

He returned to Lancaster, had a sign made about two feet long and put on the end of the house, and opened his office. One morning Mr. Andy Mayer came whistling along, stopped at the office, and said, "Good morning Marion (for nobody called him doctor). Have you had any patients yet?" He said, "No, Andy, I haven't had a patient yet." "Well," Andy said, "I wish that you would go up to my house to see my baby; he is very sick." He made the call and returned to his office, took down one of his seven volumes of Eberle, and turned to "cholera infantum," read it, and wrote out a prescription, compounded it, and sent it up to the baby. The baby grew worse; he changed the medicine. He said: "Is it possible that this child can die? Would Providence be so cruel as to allow my first patient to die—in a small village like this, and a child of so important a personage as Mr. Mayer?" Well the child died. Mr. Mayer was the tailor of the town. A few days after that Mr. Mayer's foreman, Mr. Kennedy, called him to see his baby, and said: "I hope that you will have better luck than you did with Andy's baby." Dr. Sims replied: "If I don't, I will quit the town." He saw the baby, and observed that it had the same prostrating disease. He took Eberle

down again and read it backwards and reversed his prescriptions. At first he had no consultation, his old preceptor, Dr. Churchill Jones, having gone on a visit. However, as soon as Dr. Jones returned, he called him in. Dr. Jones said: "Well, Marion, that baby is going to die." "The devil you say," said Marion. "If this baby dies, doctor, I shall never be your successor in this town, for I shall leave." The baby died, he returned to his office, tore down his sign and dropped it into an old well in the back yard and made his plans to go west to Alabama.

He located at Mt. Meigs, near Montgomery, and built up a very good practice in medicine and surgery. He was now only twenty-two years old, but he was called in consultation at long distances. I must relate one case. He was called to see a patient, an overseer, about thirty miles away. Eight or nine doctors had seen him, and he was no better. Dr. Sims did not want to go, and advised them to call a doctor from Montgomery. However, he was prevailed upon. When he entered the sick room the man rolled his eyes over toward him and said to Mr. Evans, who brought Dr. Sims: "My God, Evans, do you call that thing a doctor? Take him away. I am too sick a man to be fooled with. Take him away." He pacified the patient, got his history, examined him thoroughly, and decided that he had an abscess in the right side and said that it should be opened, and asked for consultation. He had consultation with Dr. Baker, who had recently come from the North and who thought the man had cancer and was opposed to surgery. That blocked the game. Dr. Sims, seeing that the man would die if nothing was done, then proposed to leave the question of operation to a council of citizens. They met, he stated the case, and they decided to operate. He opened the side and drained the abscess. Dr. Sims says that it was one of the happiest moments of his life when he saw pus come welling up from the opening. The man recovered, and this gave him a great reputation in that section.

About this time he served with the militia as a private in the Creek War, refusing the

service as surgeon in another command. When he returned from the Creek War every comrade was his friend, and he felt so safe in his practice that his thoughts now turned toward matrimony, and he visited Lancaster to marry his boyhood sweetheart, Theresa Jones, with whom he had had a secret engagement for several years. The wedding took place on December 31, 1836. In his story he says: "I will go on with this narrative, which will show in the end how much of my success in life has been due to my wife's co-operation and to her wise and good advice."

He moved from Mt. Meigs to Cubahatchee, Alabama, and in 1839 had all the practice that he could do. In 1840 he contracted malarial fever, from which he almost died. His health was broken by malaria and he decided to move to a healthier place. On his way to another location he stopped in Montgomery, where he met some of the doctors, who urged him to locate there. He says: "I was too diffident of myself, and too modest in my aspirations, to dream of looking so high, and that in a city which was full of older men high up in their profession." He left Montgomery, but after looking over other locations, decided to go there. He had very little money, but the merchants gave him credit, the "free niggers" gave him his first practice, and a little later he had all the Jewish practice. Dr. Sims was the first man in the South to operate upon club-foot and the first to operate for cross-eyes, and at the end of five years he had established a reputation as a practitioner and skillful surgeon.

The year 1845 was the turning point in his life. When he went to Montgomery he sold his shotgun and gave away his hunting dog. Up to that time he had been inclined to turn aside to do anything except to practice medicine. He was now determined to do his best. He had made a reputation worth having. Patients from distances came to him for surgical treatment. One day a young woman, whose face was covered with a double thickness veil, came in to see him, saying that she had heard of his surgical skill, and wanted to know if he could do anything for her. He said: "Show me your

face." She raised her veil, and he says the sight was horrible sickening—the worst hare-lip he had ever seen. She had no teeth, and he could look clear into her throat. He told her that he could cure her in a month, give her some teeth, and she could whistle if she wanted to, and she could enjoy the value of society and the association of her friends. All of this he did, and here was the beginning of one of his little life stories.

The dentist made a plaster mould of the woman's mouth and sent it to Dr. Sims. It laid on his mantelpiece and was frequently observed. Dr. Harris, of Baltimore, the founder of the Baltimore College of Dental Surgery, the first of the kind in this country, or the world, was on a visit to Montgomery and called at his office. He picked up the plaster model and asked, "Doctor, what is this?" Dr. Sims gave him the history. Dr. Harris then asked him to write up the case for the next issue of the Journal of Dental Surgery. Dr. Sims told him that he could not write anything, that he would be ashamed to see anything of his in print. Dr. Harris insisted and Dr. Sims finally wrote it out. After a few months a copy of the Journal came, he read his article, and was so ashamed of it that he determined that none of his medical friends should see it. So he hid the Journal in his library over behind some books. Some months after this Dr. Ames, one of the older doctors came in and asked Dr. Sims if he had any new books, and he said, "No." Dr. Ames looked at the books in the case and pulled out the one behind which he had hidden the Journal. He saw something with a new cover on it and he reached in and pulled out the Journal. He opened it and began page after page, and when he came to the harelip case, he read it through. Dr. Sims stood trembling like a leaf, with his heart in his throat, expecting to get "fits" when he had read the article. But when Dr. Ames turned and said, "What would I give if I had the faculty of expressing myself in writing like that!" Dr. Sims remarked: "My dear doctor, you have lifted a great load from my heart. You have frightened me almost to death, and I don't know what you mean." Dr. Ames said: "Let

me give you a piece of advice. I have seen you do many beautiful operations, and I advise you to report them to the press. I see that you are timid and lack confidence in yourself, and if you will send your productions to me, I will make such suggestions as are necessary and return them for your consideration." Dr. Sims acted on this suggestion and reported many cases and thus started his literary medical career.

About this time he had a case of trismus neonatorum upon which he made some notable and original observations. Holding an autopsy, he found definite pathology and decided that he had discovered the cause of the disease. This he published and later wrote more upon this question.

Just at this time the subject that made him world famous attracted his attention. He saw his first case of vesico-recto-vaginal fistula, a most loathsome condition. He consulted all the literature with utter disappointment. But it set him to thinking. His skill brought three of these incurable cases to him within a few weeks and he had to send them away without attempting to operate. He had built a small hospital in his yard for negro patients. One of his white patients sent his slave girl, Lucy, to him, any way, notwithstanding Dr. Sims told him that he could do nothing for her. However, he carefully examined her and told her he would send her home the next day. But as fortune would have it, on this very day an accident happened which gave him a ray of light. A very large fat woman early in the morning was thrown from her pony cart, resulting in great pelvic pain. He had to make a digital examination, which he disliked very much to do. He felt the uterus retroverted. He immediately called to mind what Professor Prioleau said in 1833 at the Charleston Medical College. He said: "Gentlemen, if any of you are ever called to a case of sudden version of the uterus backward, you must place your patient on the knees and elbows, introduce one finger into the rectum and another into the vagina and push up and pull down." He placed the woman in position, introduced the finger and felt the uterus, but his finger being so short,

he could not replace it. He then introduced two fingers, turned his hand and pushed very hard, and all at once he could not feel anything. While he was wondering what had happened, the patient said, "Doctor, I am relieved." He told her to lie down, and in attempting to move, she fell on her side, making a loud explosion as if gas had escaped from the bowel. Then he understood the situation—the air pressure had distended the vagina. Like a flash, he was fired with an idea: Why couldn't he put his vesico-vaginal cases in this position and see the relations, operate and cure them? Forgetting the twenty calls awaiting him, he jumped into his buggy, which he playfully called his "Grecian galley," drove by a hardware store and obtained a pewter spoon, hurried home, called his two medical students to the hospital, arranged a table and examined again the vesico-vaginal case, this time in the knee-chest position, using the spoon with the handle bent. He observed as no one had ever before the relations of the parts. He decided to operate, but it required three months to get the necessary instruments made. Thus the speculum was invented.

When all was ready he had his medical friends to assist in his first effort. This was before the days of anesthesia. The operation was finished in about one hour, but the fistula did not entirely heal, only parts united, leaving three leaks. He tried the other patients, and failed. Then he tried the same case over and over again, until one case was operated on thirty times, without success. His medical associates lost faith and hope and did not have the charity to further assist him in the work. His Scotch characteristics rose supreme. He was determined to succeed. His patients had confidence in him and not having other assistance, he trained them to help in the operations.

About this time his brother-in-law, Dr. Rush Jones, appeared on the scene and admonished him to give it up—he owed his life to his family; he could not succeed." But Dr. Sims told him that he would work it out if it killed him. Failure staring him in the face, he reviewed the whole situation, and concluded that the trouble must be in the su-

ture. At this moment fortune played to his hand again. Crossing the yard one day he found and picked up a small brass wire, and at once he wondered if he could have a silver wire of that size made. His jewelers made it and he used it as a suture on the patient, who had stood thirty operations. The wound healed perfectly. He then operated successfully on all of the other cases.

In 1849, after four long years of desperate effort and most discouraging failures, victory was won. He had cured the incurable. Six weeks after this great success he had a complete collapse and contracted a diarrhea which lasted him six years, and from which he thought several times he would die. In 1853, when he thought surely his time had come, he wrote out the history of his operation for vesico-vaginal fistula and had it published in the American Journal of Medical Science. His persistent ill health was a great hindrance. He traveled all over the Eastern and Southern United States, seeking health at the different springs, first in New Orleans, then in New York and elsewhere, and finding that the New York climate and water agreed with him better than any other, he decided to locate there permanently in 1853 for his health, not to establish a woman's hospital.

His struggle in New York is exceedingly interesting. All the surgeons were familiar with his discovery and his skill. Dr. Buck asked him to operate for a lacerated perineum, also for vesico-vaginal fistula. A few days afterwards Dr. Buck borrowed his instruments to operate on a vesico-vaginal fistula without asking him to assist, and at this he felt very much hurt. He operated for Dr. Mott in a case of fistula, and operated for others. They all soon learned the trick and turned the cold shoulder to him. He saw at once that if he would ever succeed, he must have a hospital. So he began and when he first talked with Drs. Mott, Stevens and Francés about founding a hospital for women, they gave him encouragement and promised him their help, but later so discouraged him in the undertaking that he gave it up in despair, and contemplated a return to Al-

abama; but his good wife said, "No, God is with us and we will fight it out here."

At this juncture a most remarkable thing again happened. At the Astor House he met an old friend, Mr. Beattie, of Montgomery, whose practice he used to do, to whom he told his trials and disappointments. Mr. Beattie said: "I will introduce you to a man tomorrow who, if he takes a liking to you, will put this thing through." The next day at the time set Mr. Beattie brought to him Mr. Henri L. Stuart, who heard his story, and said: "It is lucky that you did not fall into the hands of Drs. Mott and Stevens and the College of Physicians and Surgeons. You would have been in a clique. You are now free. We will now rent Stuyvesant Hall, advertise for the doctors of the city to attend a meeting which is to be addressed by Dr. J. Marion Sims, late of Montgomery, Ala., on the necessity of a hospital in New York City for the treatment of the diseases of women. If you don't make the damndest failure that a man ever made in the world in one month from now, instead of being a beggar, you will be dictator and commanding the situation entirely." Dr. Sims said something about expense. Stuart said: "Damn the expense; never mind about the money." Stuart proved to be his Moses. The meeting was held in May, 1854. The establishment of the hospital was assured, and by the aid of the good women of New York City, it was opened at 83 Madison Avenue in May, 1855.

Dr. Sims' great career now began. Dr. Thomas Addis Emmett was made his first assistant. The success of the hospital was beyond all expectation and larger quarters was soon needed. Finally the city gave the land of the old potter's field, consisting of one entire block, for the grounds of the larger building. In 1861 Dr. Sims went abroad to study hospitals. The war broke out while he was in Europe, and he could not obtain a passport for his return without swearing allegiance to the United States government, and that he would not do, being a Southerner. This gave him a better opportunity to visit the large cities of Europe, mentioned at the beginning of this paper. In Paris he

met Dr. Souchon, of New Orleans, who acted as his interpreter in the French clinics. He operated for the greatest surgeons of the world—Velpcau, Nelaton, Syme, Sir John Thompson. In Paris his wonderful success created a perfect furore. It was the talk of the city. His notable patients in Paris were the Empress Eugenie, the Duchess of Hamilton, and a countess whose name he does not reveal. Honors were showered upon him.

Upon his return home he worked diligently to construct the new hospital, which stands as his greatest achievement. He made repeated trips abroad and was perfectly familiar with European medicine. Patients would flock to him in Paris as well as in London. He could have located anywhere in Europe and would have been blessed with all the practice desired.

He is the father of gynecology. He wrote many article and a few books. He was a member, or a corresponding member, of every great medical society in the world. He was president of the A. M. A., also president of the American Society of Gynecology. He has been honored as no other medical man of America.

Dr. Sims expected to live to the age of ninety, but an attack of pneumonia affected his heart; however, he continued hard work, at the age of seventy. He was now making plans to retire after a winter's rest in Italy. He had bought a home in Washington and secured passage for his trip abroad. After a tedious operation on one of his friends, he retired late, as usual, and suddenly passed away.

Mrs. Russell donated means to erect a bust to his memory in the Woman's Hospital and later the citizens of New York City erected a life-size bronze statue in Bryant Park, just back of the City Library on 42nd Street. His name will stand in the history, progress, and discoveries in medicine, associated with Morgagni, Laennec, Lister, Morton, Koch, Schaudin in Ehrlich.

THE NEEDS OF THE MEDICAL PROFESSION IN TENNESSEE.*

By L. L. Sheddan, M. D.,
Knoxville.

Our Secretary asked me a few days ago to say something tonight upon the subject of "The Needs of the Medical Profession in Tennessee."

We desire to assure you gentlemen who will represent us in the next session of the Legislature of Tennessee that we very much appreciate the honor of your presence with us this evening. We feel satisfied that it is your purpose and your most earnest desire to be in a position to act for the very best interests of the people when you are called upon to vote for any measure which may come before the General Assembly to be acted upon. And we have demonstrated our confidence in you by electing you to these important positions.

To begin with, I wish to first refer to some conditions which obtained in Tennessee a few years ago and to call attention to some very valuable legislation which has been enacted in the past and which has placed our state in the front ranks, insofar as scientific medicine is concerned.

Before the enactment of the vital statistics law no records were kept of births and deaths, and there was no way of correctly estimating the prevalence of any disease contagious or otherwise. We had no means of ascertaining the number of deaths from typhoid fever, tuberculosis, smallpox, diphtheria or malaria. Public health conditions were such that very little was done in any systematic manner to ascertain the localities where any of these diseases were prevalent, or to limit their dissemination. Under the present law a great deal is being accomplished along these lines, and we can now arrive at a pretty correct estimate of all these lines.

As to the registration of births we consider this one of the most important features of

*Read at a meeting of the Knox County Medical Society, at which members of the General Assembly from Knox and Loudon Counties were present, aJanuary, 1921.

the vital statistics law. The past few years have demonstrated very forcibly the extreme value of birth registration. Many difficult and embarrassing situations would have been avoided had this law been in force twenty-five years ago. The selective service law for the purpose of drafting men for the army brought this out very forcibly. If such a law had been passed in time it would not have been such an easy matter for certain slackers to have evaded service in the army. All that would have been necessary would have been to have looked up their records in the office of the vital statistician.

I merely mention these things to call your attention to what has been done along the line of valuable legislation in the past few years.

Again a few years ago the medical practice laws of Tennessee were so lax and inefficient that our state became the dumping ground for the whole country for those who could not get a license in their own states. Our laws were such that with very little preliminary education and with only one or two years in a medical college a man could be admitted to examination before the Tennessee State Board of Examiners, and, with practically no preparation, be licensed to practice medicine. So low had our standards sunk that few other states in the union would grant us reciprocity. A medical license from Tennessee was recognized by nobody anywhere. Under our present laws, Tennessee has taken her place where she justly belongs in the front ranks of states from a medical stand-point. A medical license now from Tennessee commands as much respect as from almost any state in the union, especially amongst the Southern states. Some of the other Southern states are, however, ahead of us in regard to public health laws, especially Louisiana, Mississippi and North and South Carolina.

A provision should be made, we think, in Tennessee like that of Alabama, viz., for things which concern public health and sanitation to be left in the hands of the organized medical profession of the state. For instance, health officers should not be appointed by the Governor or County Courts for political reasons and to fulfill partisan promises,

but they should be selected with an eye to their fitness, and the members of the profession are certainly the ones best qualified to judge of a man's fitness for such office. The state health officers should be elected by the State Medical Association and county health officers by the respective county medical societies. To the average layman a doctor is a doctor and all "look alike", and every man thinks **his** family physician the most competent and efficient. This is as it should be. Everyone should have the utmost confidence in his physician, but this does not argue that he would make a competent executive. The greatest surgeon or the greatest general practitioner in the state might be totally unfitted for a public health official. Consequently we are in a much better position to judge of the qualifications of any aspirant for such positions than are those who have in the past been the appointing parties. Then we say that one of the needs of the medical profession in Tennessee is to have a law which will leave questions concerning public health and sanitation to the different medical organizations in the state.

As to laws against quackery and patent medicines:

Now these are questions which medical men are very loth to discuss in public and before legislative bodies for the reason that it so often arouses a suspicion in the minds of some that it is a selfish and mercenary motive which prompts our actions. Just why this is true is to our minds most incomprehensible, for if there is any one class of men who have demonstrated their pure unselfishness, I think it is the medical men. No other profession sent anything like the same percentage of men to the army. No other body of soldiers did more heroic work in defense of their country than did our matchless physicians, and no one can say that they did it from any mercenary motive, nor was it because of the draft regulations. Thousands upon thousands of them who occupied prominent positions and enjoyed lucrative practices who were far beyond the draft age did not falter or hesitate to offer their services to their government. They did not consider for one moment what they would lose in a

financial way; all they needed was their country's call for service and a patriotic desire to be there when our boys needed their services. I want to say further that you do not have to hunt for such men—they are here tonight, and we delight to honor them and thank God that we have them in the Knox County Medical Society.

Again, witness those who did not go to war. When the influenza spread like a pall over the land did these men seek to profit by this calamity? I say they did not. They could have chosen their work and have charged their own prices for their services, but did they? No, indeed, they did not, but so long as their strength held out, and often when sick themselves, they went day and night to rich and poor alike, and never did they falter in their duty to those in distress. Then why, when they raise their voices against these monstrous frauds and human vampires who seek to profit by the afflictions of the sick and dying, who promise that which we and they know they cannot give? I say why should we be accused of selfish and mercenary motives?

These scheming pretenders do not succeed in imposing upon the educated and well-to-do, such as you gentlemen are; if they did it would be a matter of less concern for the reason that you have had better opportunities of learning and observing. Their victims are found among, and they fatten upon, the ignorant and credulous.

We do not know that there are any ways whereby the advertisement of patent medicines can be stopped or prohibited; but they could at least be taxed sufficiently to make them help to furnish revenues to, in a small measure, compensate for the damage they do. They should be made to pay as much in taxation as they pay for each advertisement they insert in any periodical which is given the privilege of the United States mail.

It is not because the quack and patent medicine vendors cut any important figure in the income of the physician, for they have but little effect upon that. The harm is done by their pretending to treat patients who are suffering from conditions which, if the disease was recognized early before its ravages

are too far advanced, might be relieved by scientific treatment. They offer cures to the incurable and filch money from those who can ill afford to waste it. They will dilly dally with treacherous diseases until a hopeless stage is reached, when they will finally appeal to some regular medical practitioner whom they will censure for failure to accomplish the impossible.

Another need in Tennessee is that of a law providing for revoking license to practice medicine. The lawyers have the right, when a lawyer is found guilty of gross violation of the legal code of ethics and of taking unfair and unjust advantages of a client, or of being guilty of any gross unprofessional conduct in any way, to bring him to the bar of justice and revoke his license and deprive him of the further privilege of practicing law in the courts of the country. We should have the same rights and privileges of purging our profession of all such undesirable characters who are nothing but parasites and a disgrace to an honorable profession.

When a man is licensed to practice medicine in Tennessee, he wears the same clothes, is branded with the same mark, has the same credentials, and enjoys the same privileges of practicing medicine that are enjoyed by all honest, conscientious, high-toned ethical members of the profession. Because of these legal rights and privileges, the charlatan and the quack, the unscrupulous and the dishonest, the unethical and the incompetent are free to prey upon an unsuspecting public, and some are ready, willing and anxious to enter into a conspiracy with a certain class to perpetrate a felony. When a man who is clothed in the robes of an honored profession deliberately and premeditatedly deceives his patient, and by false claims and promises betrays the confidence of his patient and filches money from him, he is no longer worthy to wear the habiliments of such profession. And when he sinks so low as to be willing, for a price, to enter into a conspiracy to destroy the lives of children yet unborn, to gratify the whims of those who wish to escape the responsibility of parenthood, or to cover up the sins of the offenders, he

should most certainly be placed beyond the pale of legal medicine, and we should by all means have the right to purge our profession of all such parasites—not alone for our own sake, but for the sake of protecting the unsuspecting public. If you gentlemen can accomplish this, by giving us such a law, you will be entitled to a crown of glory, and children yet unborn, who will never otherwise have the opportunity of enjoying the pure air and God's blessed sunshine, will rise up and call you blessed for generations yet to come.

We blush to tell you gentlemen of the Legislature that this is no vamping of a distorted mind, but a stern reality and an unquestioned fact. We are sorry to say we have some such, or at least we have every cause to believe we have, here in Knox County. We are loth to believe it ourselves, but when a woman who is dying, or believes herself to be dying as the result of such proceedings tells us that she is the victim of one of these unscrupulous and diabolical monsters, we are forced to believe it and forced to hang our heads in shame, and we beg of you to do what you can to enable us to free ourselves from such an incubus.

Occupying the position I happen to have, the honor of the presidency of the Tennessee State Medical Association, I have received some letters inquiring about the attitude of the men who have been elected to represent us in the next Legislature toward the laws regulating the practice of medicine in Tennessee, stating that one member had been quoted as expressing a desire to do something to help relieve the situation in regard to supplying certain sections with physicians. They seem to infer that he is in favor of repealing some of our most valuable laws and of again restoring old conditions. In reply I have said to them that while I was not personally acquainted with the particular member of our delegation referred to, that I did not understand his statement as meaning that he was willing or desirous of letting down the bars and flooding our state with incompetents and that I felt quite sure his aim would be to maintain the present high standards of our state.

Now, gentlemen, we recognize as well as any one does the situation in certain localities and the growing scarcity of physicians, and we are as anxious as any one else to see some remedy applied which will relieve the situation, not by removing restrictions so as to allow Tennessee to again become the dumping ground for incompetents and undesirables, for we are still suffering as the result of that condition in the past, but by making it easier for young men in moderate circumstances to secure a scientific medical education, and by making it more desirable for a man to enter the profession by giving us the power to purge ourselves of the undesirable element. How this is to be accomplished is the question. This subject is agitating the minds of the people all over the United States. There is a feeling that entirely too much is required of a young man before he can enter the medical profession.

One of the things which operates to bring about the shortage of physicians is the limited facilities for training young men as they must be trained at the present time. Jefferson Medical College, I am told, turned down more than eleven hundred applicants for entrance into the freshman class this year, Vanderbilt turned down over a hundred, and the Atlanta and Louisville schools have done the same thing. So you see it is not so much a scarcity of young men who are willing to take up the work, but a lack of facilities, or a conspiracy among medical colleges to limit the output of physicians. I am constrained to believe it is the lack of facilities rather than a conspiracy.

However, there is one thing that can be done in Tennessee, and that is to give free medical education to any young man who is a citizen of the state. The state gives free education to its engineering students, and its agriculture students; then why not to her medical students? Why should men who desire to enter a profession which devotes more time and energy to the public than all others combined be discriminated against? We feel that at least this much can be done by our State University to relieve the shortage of physicians.

Good roads and automobiles are also doing

much toward relieving the situation. One physician now with an automobile and good roads can do more and better work than three men could do in the olden times on horseback and in buggy over mud roads.

So you see, gentlemen, there are certain ways that the situation can be relieved other than lowering our standards of efficiency. By all means do not let that happen, and we do not believe that educated, progressive men like yourselves would for one moment encourage a move of that kind.

This question will in all probability come before you for action, and if any attempt is made to again lower our standards and to degrade our profession, we beseech of you gentlemen to oppose it. It is not altogether that we need more doctors, but we need and want better doctors and the facilities for them to do their work well.

There is one more thing I think the medical profession needs, and would much appreciate having made possible. It is a delicate question to spring in the Legislature and one which will in all probability meet with some opposition. It is also a question which we are uncertain as to whether it is in the power of the Legislature to settle. However, it can be agitated there and possibly start a movement which will result in giving us relief. It is not a question of doing something for the physicians personally, any further than enabling them to be of the very best service possible to their patients. We refer to the question of prescribing alcohol or whisky for our patients. I understand the prohibition laws of the United States provide that physicians shall have the right to prescribe a certain amount of whisky to any one patient, but in Tennessee we are unable to do so. This is not the place nor the time to enter into any argument as to whether whisky is a stimulant or a sedative. Be that as it may, we do know that in certain cases and under certain circumstances it fills a place which is hard to be supplied by any other remedy. We know also that we have some men in the profession who in all probability would abuse the privilege; however, the same can be said in regard to the prescribing of morphine and other narcotics. It

does seem that the same restrictions could be thrown around the sale of alcoholics that are now in force in regard to the prescribing of opiates. Then if we had the privilege and the right to revoke a man's license for just and sufficient cause we could very easily put a check upon any man who would be guilty of gross violation of this law. I do not think that the high class physicians of the state would shield or protect any man who would degenerate into an ordinary booze vendor. As it is, if we get any kind of an alcohol for our patient whom we honestly feels needs it, we must sneak around and become law-breakers to get it. And the article secured is usually of doubtful composition and potency. Still when we need it we do all we can to get it, for, be it said to the everlasting credit of the physician, he will go to great lengths and take many chances when he conscientiously feels he is working in the best interest of his patient.

We need some means whereby more young men will be enabled to enter the profession. We need greater facilities for giving medical education to those who are at present seeking it and are being turned away for lack of facilities.

We need laws to enable us to protect not ourselves, but to protect the public from falling into the hands of charlatans and quacks and from being the victims of the conscienceless patent medicine vendors.

Almost every Legislature has to consider an antivivisection bill. There is a certain sect who come with maudlin sentiment and seek to throttle scientific investigation by having a law passed which will prevent animal experimentation. They consider the life of a rabbit, a guinea pig, or a monkey more valuable than that of a child. If nothing but the discovery of antitoxin for the cure of diphtheria had ever been discovered by animal experimentation, that alone would compensate for all the loss of life and suffering which has ever been inflicted upon lower animals.

What, however, we do not need is to have the standard of our profession lowered by laws which will make us the dumping ground for the ignorant, vicious and incompetent

from the four corners of the earth, a move which will again make the name of Tennessee a hiss and a byword throughout the medical world.

Another thing needed in a medical way is some provision by the state for caring for indigent tuberculous individuals. There should be a sanatorium in each grand division of the state, where such cases could be isolated and kept from being a menace to those around them and where they can have care and treatment of a character which will give them some chance to recover.

A home and school should be established for the mental defectives. A great deal can be done for many mentally defective children which will make them self-sustaining and keep them from being a burden upon the state.

A hospital fund should be provided for the benefit of crippled and deformed children of the state, whose parents are not financially able to pay for such treatment. The physicians and surgeons of the state are always willing to give their services to any worthy charity, but you cannot realize the difficulties under which they labor when treating this class of patients, because of lack of proper facilities. You have no idea how many crippled and deformed children we have scattered over the state, many of whom could be salvaged and made into useful and productive material where now they are permitted to be a waste, and in many instances, a care upon the state. Provisions should also be made for foreign parents to give such children a chance for the best treatment possible. We are constantly reminded of this when we see such children amongst the poorer and ignorant classes who refuse to have anything done for, say a club-footed child.

We do not seem to need very much in Tennessee, as you will observe, but there are other things I might mention which I will refrain from as we do not care to bore you with our troubles nor burden you with our requests. We beg of you, however, to bear in mind that whatever the medical profession in Tennessee sponsors is worthy of consideration.

We do not expect to get all we want—in

fact, we may not succeed in getting any more than we have, but we certainly expect of and look to you gentlemen for protection against any danger which may threaten us and to assist us in every way possible, not only in keeping up the high standard of our profession, but also in aiding the passage of any further legislation that will be of further benefit and assistance in our fight for an honorable and more efficient profession.

(This is an address delivered before the Knox County Medical Society at which were present by invitation members-elect to the Legislature. The recommendations herein contained were unanimously endorsed by the members of the Knox County Medical Society, and expressions were heard from members of the Legislature promising to do all they could to assist us in securing constructive legislation, and promised that no attempt would be made to lower our standards.—L. L. S.)

THE USE OF MALT SOUP—BUTTERMILK FEEDING IN ATHREPSIA.

By R. H. Perry, M. D.,
Nashville.

In infants suffering with athrepsia, or, as it is commonly termed, marasmus, feeding is often a very difficult problem. For this reason the following brief report is offered of a method of nourishing such infants, it having been used in forty such cases during the past four years.

The average ease to which this method of feeding has been applied has given a history about as follows: Usually at the second month the mother's milk began to fail. Cow's milk or some patent food was tried in amounts too strong, and the infant's digestion was upset. The food was soon changed, with like results. The deranged digestion now began to reflect in the infant's general condition. The weight, at first stationary, began to decline, so that now at the sixth or even ninth month the infant only weighs eight or nine pounds. The infant has become pale, the skin being dry and inelastic. The muscles are flabby, the temperature subnormal. The stools at times are normal, but are usually soapy or undigested. The baby

cries constantly from hunger, in spite of food being given.

In such cases as just described, fat absorption is greatly reduced. Carbohydrate and salt metabolism are also interfered with. This being true, the only ideal food for these cases is breast-milk, and this often has to be diluted before it can be digested. But breast-milk is not available in all cases and some substitute is then necessary.

Where it is necessary to nourish the athreptic on artificial food pediatricists agree on one point, viz.: such cases do not do well on milk formulas rich in fats. For this reason whole cow's milk dilutions are rarely prescribed for these infants. Instead, skimmed milk, or milk from which at least a part of the fat has been removed, is used for feeding.

In spite of the fact that the weight of evidence is against the use of whole milk, I have found that when it is used in the form of unsweetened evaporated milk it will often be digested when other foods will not be. Consequently on unsweetened evaporated milk and skimmed milk I usually depend in feeding the athreptics. When the evaporated milk is used one ounce is considered as representing two and one-fifths ounces of whole cow's milk. A feeding for the athreptic is first figured in terms of cow's milk, then its equivalent of evaporated milk substituted.

While there are many infants who will gain on diluted cow's milk to which dextri-maltose, lactose, or cane sugar has been added, this report deals with those cases that have received additional carbohydrates in the form of malt soup. The latter is one of our most valuable preparations in feeding undernourished infants. In extreme cases, like other things, it does not always work, but as a general proposition it may be considered a valuable milk modifier.

All of the forty cases that have received malt soup have been over five months of age. Scurvy sometimes mentioned as occurring in infants fed on malt soup has never occurred in my experience. Both the liquid and dry malt soup preparations were tried in these cases. The best results were obtained with the liquid malt.

In using malt soup to modify milk all

printed directions with each package should be discarded and each infant fed as an individual. In the preparation of malt soup feedings I use a method advised several years ago by Hoobler. A cereal water as rice or barley water, is made, this being cooked from one to three hours, depending on the kind of cereal used. To this cereal water the specified amounts of milk and malt soup are added, the whole then being boiled for twenty minutes. Malt soup has rarely been increased to more than one and one-half ounces in the day's feedings.

In any of the cases where the stools became too frequent or the infant began to "spit up" after feedings, the amount of malt soup was immediately reduced.

To feed the athreptic an amount of the above food to satisfy its hunger would often result in collapse and probably death. As a rule, water given between feedings does not stop the incessant crying. In the management of these cases it has always been a hard problem with me to keep the baby's attendant from increasing the food too rapidly. Such changes are often attended by untoward results. To prevent such changes I allow buttermilk between the regular formula feedings. In none of the cases has it ever caused vomiting, and the only discomfort noted was when it was given in amounts too large and colicky pains resulted. Both artificial and ordinary churned buttermilk have been used. Where the latter is used it is necessary to see that the fat content is not excessive.

Buttermilk being low in fat, is as a rule easily digested, but fed alone it has rarely served me well in athrepsia. As an adjunct it has been of valuable service. By using buttermilk in this way from 50 to 200 calories of additional food can safely be supplied the athreptic. The buttermilk is first fed diluted one-half with water, then full strength in amounts of two to four ounces between feedings. In several cases where the infant's digestion had sufficiently improved it was given ad lib.

While it is the custom in certain sections of the country for pediatricists to supplement a breast feeding or a milk dilution with albumin or lactic acid milk, the use of butter-

milk between feedings in athrepsia is, as far as I am aware a new method of dealing with these cases.

The chief criticism against this method is that the buttermilk might be considered a regular feeding and then the infant said to be overfed.

In the forty cases in which this method was used all but four recovered and developed into normal, healthy babies.

To illustrate this method of feeding further, several case histories are appended.

Case 1.—Baby C., age 9 months. The fourth child of healthy parents. The infant was born at term after a normal labor. The mother, though apparently healthy, had never been able to nurse any of her previous children successfully. The infant nursed entirely for two months, but still only weighed seven and one-half pounds—the same as at birth. After the second month various combinations of whole milk, malted milk, sweetened condensed milk, etc., were tried but with little gain in weight.

At the ninth month when the infant was first seen by me, the weight was nine pounds, two ounces. After a complete physical, x-ray and laboratory examination, the case was diagnosed as being due entirely to bad feeding, all other factors, as syphilis, tuberculosis, etc., being excluded.

A feeding consisting of Peerless brand evaporated milk, five ounces, malt soup, one-half ounce, barley flour, one ounce, water, thirty ounces—seven feedings of five ounces each—was prescribed. But this did not satisfy the infant, so the milk was gradually increased to seven ounces, the malt to one ounce, and the cereal to one and one-half ounces. The infant still appeared hungry, crying incessantly. Buttermilk, diluted at first one-half with water, then plain, was allowed between feedings. At first it was given in two ounce amounts, later ad lib. The gain in weight, which was slow at first, became rapid with the addition of the buttermilk.

At the seventeenth month on this food the baby weighed nineteen pounds. At two years the child was entirely normal. The malt in

this case was used until the baby was eighteen months of age.

Case 2.—Baby G., when first seen was five weeks of age. The mother's milk was scanty from the second week after the baby was born. The attending physician had prescribed supplementary feedings of Eagle condensed milk. At the fifth week the baby had failed to gain, and weighed six and three-quarter pounds, the same as at birth. Various milk modifications were tried, but with little gain in weight. At the sixth month the weight was only ten pounds. At this age the baby was put on malt soup buttermilk feedings. The gain in weight and improvement in the infant's general condition were soon apparent. At the fourteenth month the baby weighed twenty-one and one-half pounds.

Case 3.—Baby J., age 9 months, had developed athrepsia after a severe case of ileocolitis. When the diarrhoea first began the baby's weight was eighteen pounds. During the attack it had lost six pounds, so that when first seen by me, four weeks after the diarrhoea began, the baby's weight was only twelve pounds. During the acute stage of the diarrhoea the baby had been wet-nursed, but circumstances were so that artificial feeding had to be resorted to.

A feeding consisting of one teaspoonful of Peerless evaporated milk in six and one-half ounces of rice-water, to which malt soup in the proportion of one ounce to the quart had been added was ordered fed every three hours. The amount of evaporated milk was rapidly increased, and in the course of a week buttermilk was given in two to four ounce amounts between feedings.

The gain in weight in this case was very rapid, and when thirteen months of age the baby was entirely normal.

Other cases could be cited to illustrate this method of feeding, but as these cases show how the method is applied, it is not deemed necessary.

CONCLUSIONS.

1. Athrepsia in many cases is successfully treated by the use of malt soup combinations.

2. Where such infants cannot be satisfied by such feedings except in amounts sufficient

to endanger life, buttermilk may safely be given between feedings.

3. Buttermilk thus given should be low in its fat content. At first it should be diluted one-half with sterile water, then gradually increased until given full strength. In amounts it should be fed two to four ounces, or in some cases it may even be given ad lib.

THE SURGEON, THE PROFESSION AND THE PUBLIC.

By Chas. N. Cowden, M. D.,
Nashville.

I come before you today in the role of critic, realizing fully that my duty is an unpleasant one and one that I would gladly shirk; but we have come face to face with some problems that we must solve and must solve within our ranks. It is not a pleasant task nor an attractive sight to wash dirty linen in public, but one thing is sure: if we do not perform this duty, unpleasant and distasteful as it may be, some one else will do it for us.

That this is a delicate and touchy subject, because of the multiplicity of interests involved, I am very well aware. But the time has come when the menace to our profession makes it necessary for some one to tell the unvarnished truth, though the vials of wrath be poured out upon the head of the relator. I believe that it is a good and safe principle in life for every one of us to be charitable in our judgment of others, and to look well to our own preparation and fitness before we criticize or find fault with the work of others, especially with those of our own fellowship and craft. But with one that is true to his convictions, there is a certain amount of professional patriotism that prompts one to take pride in his chosen calling, and a warm-hearted humanitarianism that leads us to consider the rights and claims of our fellow beings to the best that can be given them.

If the interest of the profession alone was at stake, it might be possible without fatal disregard of our duty to overlook this subject under the plea that some one might think

that we are presumptuous to even mention the subject before this august body of men. But it has to do with humanity itself in all of its complex phases, and should interest the laity far more than the profession. If our science is what we veritably claim it to be; and what we hope and steadfastly believe it will continue to be, and if we attain and maintain the splendid perfection that our loyal patients believe we have reached, we must look with expectant eyes toward a future big with the promise of greater and better service to the human race and see to it that the welfare of none living today, or that may come tomorrow, will find us derelict in the great work that has been entrusted to our care and keeping. Ours indeed is a great heritage and not to respond to the imperative need of the hour is to acknowledge ourselves to be what in truth we would be, moral weaklings, who know and realize our duty, but are too cowardly to do it. May a kind Providence protect us from doctors that have no convictions, and who shy and sidestep even at a thin shadow of responsibility. With a spirit of love, with malice toward none, with charity for all, let us for a brief moment consider some of the menacing problems that are not only here in our state but are nationwide.

That there is a great deal of work that passes today under the name of surgery being done by ill-trained, incompetent men, will not be denied by anyone that hears me. I do not single out any community or any man, neither will the practice be found only in the remote districts, but it prevails to a large extent in our cosmopolitan centers. Men are undertaking to do this work whose education is imperfect, who have no training or experience, who like material aptitude, whose environment is such that they never have acquired this personal experience which alone can fit them to grasp any part of the subject. Many of them are unable to make correct diagnosis in simple cases, or draw correct deductions from histories. Their lack of experience prevents them from predicting probable events that if foreseen could have been forestalled or arrested. In many cases in their hands useless or worse than useless

operations have been performed, or those that were necessary have been done in a bungling way with no idea whatever of the anatomy or physiology of the structures with which they have been dealing.

Usually the more experience a man has had or the greater surgeon he is, the more keenly does he feel his limitations and how far short he falls of the ideal, and with trepidation, fear and trembling he approaches even the simplest part of the work. This is universally true of all really great surgeons. But some of these so-called surgeons are so full of self-assurance and so satisfied with their accomplishments and fitness, no matter how grossly ignorant they are, they never realize it. It seems that the more incompetent these men are, if they are stung deeply enough with the surgical bug, the louder they cry their wares from the housetops. Using a slang phrase, they have "run amuck" and will undertake to do anything that a trusting patient will stand for; and when disaster comes, or failure to get satisfactory or beneficial results, it is all charged to fate, "operated on too late," or "the patient's constitution was not strong enough to pull them through."

Here the question might be asked if the patients haven't the right as a free-born liberty-loving people to commit suicide if they so prefer by risking their lives to these men's skill and ability as surgeons. No—a thousand times no; because there are those things that stand out like a bulwark to controvert such nonsense as this. First, the patient has never been told the difference between an operator and a real surgeon, and through his ignorance these would-be surgeons take advantage of him. Again the incompetent is certified to by holding a license to practice surgery by the powers that be. He stands before his patients in the livery of the surgeon, and takes unto himself all the privileges of those mighty souls who have passed through the crucible of long years of sweat and blood, to make the word surgeon mean what it really does mean to the world in this great twentieth century of wonderful achievement and far-reaching possibilities. He parades in false livery, masquerades as it were

in sheep's clothing. But I submit to you, if he walks stiff-legged like a goat, acts like a goat, votes like a goat and smells like a goat, according to all the rules and regulations of logic he is a goat, and he has no right to equality or fellowship with the lambs that have grown into stalwart bucks upon the bleak hills of experience under the guidance of the leaders of the flock.

The incompetent should be stripped of his false clothing and stand revealed as he really is. He has seen perchance some expert operator do an operation, and heard of the big fee that he received. It looks so easy to him that he doesn't see why he could not do as well and get the fee himself, instead of sending the patient to a well-trained surgeon. He fails to see behind that surgeon's work long years of toil and training that makes him the expert operator, and so he launches forth upon his perilous career that sooner or later will cost the trusting patient the loss of his life or limb as a sacrifice upon the altar of the doctor's greed for gain or his unchecked, unhampered ambition.

Come, now, let us for a moment tear off the mask and take a look with our innermost souls laid bare. Would you pick out the man to operate upon yourself if you knew that he had no more surgical experience, skill and ability and who has had the limited opportunity to fit himself for the work than you have had? If a surgeon knows anything, he appreciates the fact that he is or is not competent to do surgery. If you feel it in your heart that you are not sufficiently well prepared by education or training to solve in some way the many complex problems involved in the everyday work, and you cannot in any way escape the results of this weighing in the balance by any subterfuge, then it is your duty to discontinue at once this practice until by further study and training under a competent instructor you are properly qualified for the work. I would also have you know that this requires long time of apprenticeship and cannot be acquired by a three weeks postgraduate course taken on the back seat of some expert's clinics or amphitheater.

I grant for the sake of being charitable

to all that one may honestly think that he is prepared to do good work after one of these periodical courses, but I want to assure you, that when one makes such a claim, he is only exposing his gross ignorance or his stupendous disregard for human life or health. After looking at the question from this standpoint, I submit to you if, under such circumstances one continues to do surgery and collect fees for same, is he not obtaining money under false pretense? Everybody makes mistakes, and everybody at times reaches his extreme limits, but I am sure no one in this audience but will recognize the difference between the one who, from lack of the proper amount of training, is habitually making serious mistakes in both judgment and execution, and the one who makes occasional mistakes common to us all, from the limitations imposed upon us as fallible human beings.

The public and the patients themselves must come in right here for a share in this reprehensible practice; for just so long as there are people who care so little who operates upon them, just so long will there be cheap professional men, cheap in every way—some almost two for a nickel—that will arise to the occasion. The patient, on his part, has a right to expect and demand of the one who takes his life into his hands that he be as competent, efficient and as skillful as any other competent, efficient and skillful surgeon under similar conditions and circumstances. Anything short of this is trifling with the most sacred thing in the world—human life. This is not asking too much for the good of humanity, and the honor of the profession demands that only those who are properly qualified should be allowed to exercise this privilege.

Surgery means more than the ability to cut and tie. It means a surgical conscience, thorough preparation, ample means of observation and training, skillful judgment, ability, instinct—yea, I might almost add, a spark of the divine and an intense yearning to follow in the steps of the Master. There is no objection to anyone being a surgeon. The world is waiting for us and there is work in abundance for all, but there is no place in

this enlightened age for the incompetent man in this field.

In looking for an explanation for the existence of this widespread condition of affairs, several factors must be taken into account, among them being certain changes in our social, commercial and economic problems. We are living in an age of a wild, mad scramble for preferment and power along all lines. The almighty dollar has ceased to woo us with the voice of the siren, but now commands all men to submit to its brazen dominating influence. To some extent this has pervaded, we regret to say, the ranks of the medical profession. In this day of higher education and more thorough preparation, by the time the medical student graduates he is imbued with the idea that surgery is the only department of medicine worth considering. Beyond any last doubt, our colleges are laying too much stress upon this branch of our science. It borders on the spectacular and much is done and taught here that should better have been left undone until the student had been in practice for many years. In fact, it is not teaching at all; it is only the showground where the misguided professor can blaze forth like a meteor to impress the student body with his wonderful skill. After witnessing one of these afternoon performances, everything else pertaining to the practice of the healing art finds him listless and uninterested. Nothing but the shedding of blood, and plenty of it, appeals to him at all.

After the young man graduates he fits up his office with a profusion of surgical instruments and fills his library with all the latest works on surgery. After he has done all of this, I want to immodestly assure him that he is far from being a thoroughly competent surgeon. I want to extend to him a helping hand, point out to him the way wherein he can go on and perfect himself in the necessary preparation that is in keeping with the responsibility of the work. I would have you realize that the door leading from the "green room" does not open into the operating amphitheater until you learn the combination after long months of private instruction and direct manipulation, that develops into ripe, mature judgment and dexterous skill. Am-

bition, opportunity, determination and work will make you a credit to your profession, and the profession stands ready to help you measure up to the responsible place that should only be filled by the sanely fit. It is not the young and inexperienced surgeon that is to be feared most, for the prejudice against the young practitioner will limit the number of his patients until his profession is completed. It is the one who has been out a long time and suddenly essays the role of surgeon that is to be most feared. This is the one who has won the confidence of the patient in the role of family physician, and it may be he has filled it so efficiently that he is entitled to the utmost confidence; but he must remember that it is as a physician that his early education and training has fitted him, and not as a surgeon has he gained his enviable position in his community. This man knows, if he knows anything, that he is not competent, and the public should have some way of determining his exact status as a surgeon.

Another one of the problems that we are face to face with is the opening up of the small so-called hospital or private sanitarium that, mushroom-like, is springing up overnight in every village and cross roads town in the country. They usually rent a house and put in a small Betz sterilizer, an operating table, a meager supply of instruments, a few beds and they are ready to begin the work of saving the public, and the public falls for it when told "you don't have to send your family away to have them operated upon; you can have them close here at home, where you can see them every day." Some few of these institutions have ministered efficiently unto many sufferers in both towns and cities; for some of them are run or conducted upon a high scientific plane in a most efficient and ethical manner and are therefore outside of the scope of my criticism. But the widespread overgrowth of this fad has become so serious and harmful to the welfare of the public that the unvarnished truth should be told about them also. The men who run them and the public that patronize them have not the faintest conception of what it takes to constitute a hospital. A hospital means organization, with efficient help, equip-

ment for making diagnosis, such as laboratories, x-ray machines, operating room, with modern apparatus to carry out modern technique and other special devices too numerous to mention. It requires capable assistants, efficient nurses and superintendents, teamwork, if you please, from orderly to doctor or surgeon, and all this takes time to develop. I have been in two of these institutions recently where neither was prepared to make even a simple urinalysis, and almost none of them are prepared to make a blood count. What travesty! I sometimes wonder if those in power realize or stop to think what a great menace to society it is when, in almost every state of this glorious union of ours, anybody, no matter who, so he has M. D. to his name, can get a charter bearing the great seal of the state for anything, and no questions asked, provided it masquerades under the name of sanitarium or hospital. With most of our institutions chartered for other purposes a bond is required, intended to safeguard the public interests; but not so for a hospital. Hospital charters are issued to anyone, given carte blanche authority to go as far as they like in exploiting the public, and to prey at will upon the ignorance, credulity and weakness of humanity; and they are doing it with the hearty co-operation and consent of those who ought to be the most vitally concerned. It seems now that it is utter foolishness and waste of breath to even hope that these institutions, that are in many instances doing a thriving business, will cease of their own accord, but in the fullness of time, when the profession wakes up to the enormity of the situation, there will come some power that will stay the progress of these misguided institutions and render this state of affairs impossible in any enlightened community.

Now, don't let anyone conclude that I am opposed to hospitals. I am in favor of all towns and communities having them, and I think that almost all, if not all, towns can support a hospital, and that they are entitled to and should have them. I mean a hospital in the strictest sense of the term. Unless they can be given such, the public should be apprised of their real status and some means

devised to muzzle them, or those that do not measure up to some recognized standard should be treated as pesthouses. .

Another damnable practice is to be found in the way and manner that our municipal hospitals are run. Most of them are in the hands of political bosses and they are a blot upon our cities. The reason or motives that actuate our hospital boards in selection of a staff are varied, and if they could be known and understood by the public, would be at times most interesting. In many instances it is the wish of the boards to extend the benefits of the hospital to as many doctors as possible, irrespective of any merit or qualifications. It is a well known fact that men are filling positions as hospital heads who never did any surgery except what they do during the few months they are on duty. They have had no special training and are therefore entirely unfit for their places. The appointments in the majority of cases are made for political reasons, or to represent some nationality or political party, or to pander to some religious body, with no thought of the qualifications of those selected to do the work. In private life the patient exercises the right to choose his doctor, his surgeon, or any other specialist, his hospital and his all; but to the poor helpless wrecks in the charity ward of our municipal hospitals, this right does not come. They must take the doctor or the surgeon that is chosen by these boards with no alternative or appeal; when out of the great heart of the city enough money has been put up to secure for these patients the very best and most experienced talent and skill that is to be found. The medical profession is responsible for this condition, and there is no way to sidestep our responsibility or shirk our duty. Our best men, when placed in these most responsible, delicate and sacred positions, will scarcely ever find the time to fill their appointments. Our confreres in the North are far ahead of us in this point. They will miss seeing a private patient, but they scarcely ever miss one of their charity clinics. Think for a moment, on account of misfortune, of having to carry your mother or your child to leave to the mercy of these unskilled

hands! If there are no demons in hell to mete out exact justice to all, and special privileges to none, there should be, and this one thought should be burned into their shriveled souls.

There is a sacred duty that we owe to humanity and we should meet it in a high and noble way. Before any one should pick up his scapel to cut asunder the delicate tissue between disease and health of these poor unfortunates in charity wards he should be far beyond the experimental stage and well grounded in the principles and the practice of the surgeon. If all this is true, someone might ask, how did it all come about? And who, if any one, is responsible? Certain it is that this state of affairs could not exist where the standards of medical ethics and professional attainments are not exceedingly low. No matter what the reason for this deplorable state of affairs is, is it right that we sit supinely still and make no effort whatever to bring about the medical reforms to correct these evils? If I or my professional brother do not know enough to distinguish between a patient who has a malady that ought to be operated upon and one who ought not to be, or if he or I does not know how to do the operation properly when it is needed, we ought not to be allowed to operate at all; and if the patient does not know enough to distinguish between the competent surgeon and the ignoramus, he should be protected from the results of his own ignorance and folly by some one differentiating for him between the fit and the unfit operator; and the same is applicable to the fit and unfit hospital.

The would-be operator and the inefficient hospital must be dealt with. If I read the signs of the times aright, if the profession does not accede to this demand, or if it does take the initiative in this reform and supervise the machinery by which it is handled, the public, realizing its sad predicament, will rise in its might, take it out of the hands of the profession where it rightly belongs, and give us another demonstration of all the common experience in our public affairs of foolish and extreme legislation by those not competent and who do not fully compre-

hend the real requirements of the situation. We must decide this as a body, because the member who is not whole-souled, flat-footed and outspoken for this daily professional honesty and square dealing with our patients, is of necessity against it. There can be no neutral ground on this proposition at all. This misuse of the science and art of surgery as practiced in our midst today must be stopped, and the cheap, ill-equipped hospitals must be prevented from opening their doors to prey upon the public. It can be done by educating the public till they know the fraud that is being practiced upon them. The demand for better surgeons and better hospitals must come from the people that use them.

We hear much said about the "white man's burden." This we are talking about is the medical profession's burden, and what are we going to do with it? is by far the most important and vital problem of our day and generation. We must solve the problem like men as we step into the places of those who, as they go down, throw us the torch that lights the way of civilization itself.

A few years ago, fresh in the minds of the older members of our association, our land was filled by every known kind of professional charlatan quack. Some stout-hearted doctor, with the love of humanity in his heart, caught a vision that all faint-hearted members said could not be realized; but he set in motion a force that under the fostering leadership of our A. M. A. swept the foul horde from our midst and made our profession what it is today, the most creditable and honored organization of men in the world. Under this same flag the cheap medical school was made to close its doors, and the high standard of medical education is another one of the milestones along the road toward the higher ideal and the better way. How was it done? By endorsement, hearty co-operation and thorough organization of the medical profession, and by education and enlightenment of the public. These forces won the victory and these same forces will always be found sufficient when wielded in the cause of humanity, justice and right.

This brings me to the discussion of the remedy. I want a remedy that will hear and

heed the faintest whisper of honest genius that is oftentimes found in the extremely modest, and yet the same time strong enough to reach the collar of the one who is masquerading in the robes of the surgeon to cover up his ignorance, pull him from the position that he dishonestly occupies, and stand him before the public in his true colors. One of the most powerful factors for correcting this evil is the family physician or general practitioner. He should be, and he is the most valuable asset in any community—the educated, conscientious, capable doctor. His position is assured; he should not and will not be displaced by the specialist, no matter how gifted the specialist may be. The welfare of his community is under his care and keeping, and try as he may, he cannot escape or sidestep the responsibility that rests upon him. He is the first one called into the case, and when he deems it a case amenable only to surgery, his opinion is sought in regard to the surgeon who is to be trusted. I grant you there might be a time when he might err in his judgment, but there is small danger when he is actuated by honest impulses and looks only to the good of the trusting patient. No medical man selects an incompetent surgeon or an occasional operator to perform an important operation upon himself or upon one of his family. He selects, as he should do, the man that has much special preparation and has availed himself of the necessary training of a skilled surgeon to trust his own flesh and blood too. Should not the public or his trusting patient be entitled to this same consideration?

You are under no obligation whatever to an incompetent or occasional operator with more ambition than skill, who, just because he has a license to practice medicine, claims that this same license permits him to rummage around into the belly at will, even though his previous surgical experience may have been limited to setting a few fractures or opening an abscess. My dear medical man, if surgery were only a trade, the operator in every other calling is required to serve many years before he can claim a degree of craftsman. To be a master bricklayer, plumber or machinist, a man must serve at least three

years, and yet the would-be surgeon is allowed to change or alter any part of our human building, repair our plumbing or adjust anything about our human machinery at will, with no special training at all. Surgery has been called a fine art. To be an artist what long years the painter or sculptor must spend in training under a master before his work receives any recognition! I would have you know that surgery is far more than a fine art or a trade. It is the grandest calling the world knows about today. It is the marshaling in a man of the forces of science, skill, experience and training, to be used against the enemies of human life, where the battlefield is the quivering, suffering human body, and the goal is health, the most priceless thing in all the world.

We must adopt some standard for the surgeon and require him to measure up to its requirements. It goes without saying that this standard must of necessity be high, for there is no profession that should demand such a high standard of efficiency as that of a surgeon. What shall be the basis, then, of this standard, and who shall be the judge? What shall be the machinery by which these standards are first set up? And how shall they be enforced? Shall it be by the authority of the profession itself, backed by public opinion, or by the state alone, or a combination of all?

The qualification as to our standard is the surgeon's medical education. The curricula of our best medical colleges have been so extended and are so complete that their graduates have a well-grounded preparation for the would-be surgeon. Laying aside now the personal fitness, the individual aptitude for the work, let us define for the student just what a man should do before he is allowed to wear the ermine of surgeon. Permit me right here to quote a paragraph from an address by Dr. Finney: "No one should be allowed to practice surgery who, by education in the laboratory, in the dissecting room, by the bedside and at the operating table is not qualified to make reasonable deductions from subjective to objective signs, be able to give some advice for or against an operation, to perform operations skillfully and conduct

wisely the after treatment of the case. To do this after graduation, he should have two years as interne in a well equipped hospital, and then he should stand across the table with some real surgeon for at least three to five years as assistant." This for the young man who is just beginning his life work; but what of the man who has been years out of college and suddenly decides that he will be a surgeon? If he has not the manhood to forego the practice, he should be made to discontinue it until by thorough preparation and competent instruction he, also, is qualified to fill the place. We hear it said that this works a hardship and entails a great deal of time and expense upon the ambitious man and handicaps him in the race for a livelihood. But the good of humanity and the honor of the profession demand that only those qualified should be allowed to pose as surgeons. There should be a board of surgical examiners, just as there is a board of medical examiners. They should be selected by the powers that be, aided by the profession and given the power to confer the right to practice surgery, and by conferring on the fit some badge of distinction that will certify to the public his fitness and qualifications. We have a standard for the medical man, why not a standard for the surgeon? No doctor questions the right of the Board to examine him before issuing him a license to practice, and the same should be extended to the would-be surgeon. The examination tests, both practical and theoretical, should be prepared by competent men with the idea in view of determining the ability of the would-be surgeon in matters of diagnosis as well as the operative technique in the science and the art of surgery.

There is already in existence in our country today an organization formed for the purpose of bringing about the reforms of which we have been speaking. It has already made its influence and power felt along certain lines and it can and will bring about every one of these reforms if only the profession is ready and willing to co-operate with it in its disinterested endeavor to standardize the surgeon of today. I hold no brief for the American College of Surgeons. It needs none

from me, and it is entirely capable of withstanding any criticism from any one who may be hypocritical or suspicious of its motive and purpose. What it has done already speaks louder than any words of mine can. It is not infallible, because it is a human institution. It has made mistakes, but it is here with a vision, and already numbers among its members thousands of the best surgeons on the American continent. Let us all get together here like men, and if it is not what it should be, let us make it an organization that will bind us all together in a common cause against a common enemy for the benefit of humanity to put down graft and corruption no matter where found, cleanse our escutcheon of any foul blots with which it is stained, and elevate the ideals and the whole tone of the profession, and in this way raise the efficiency of every individual surgeon.

The Tennessee State Medical Association has just reason to be proud of what it has accomplished in the past. Its influence can hardly be measured. As a body, it seems to me, we can do much to mold the surgeon of the future. No better surgery is done anywhere than is done right here in our own state, and if we maintain our proud position, we must meet these problems that confront us like men. In closing, let me assure you that it is not my purpose to discourage honest endeavor or exclude anyone with an ambition to be a surgeon. All that I ask is that the aspirant employ the time and means in preliminary preparation in keeping with the responsibilities of the work. It is my only desire to bring this subject naked and unvarnished before you to arouse you to your duty, and through educated public opinion to condemn the unfit, and formulate some way to restrain this wild scramble of incompetent aspirants for professional preferment and honors unearned and unmerited.

CONGENITAL CATARACT.

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Cataract is a cloudiness or opacity of the lens itself, or the capsule. We therefore dis-

tinguish between lenticular and capsular cataract, or where both the lens and capsule are cloudy we call it capsulo-lenticular, and lenticular. There are two other varieties which are not congenital, but which should properly be included in this class, as they are dealt with in the same way: the traumatic, and the secondary or capsular cataract; that is, where the capsule becomes cloudy secondarily, following operation on either of the varieties.

Objective symptoms vary with the amount of cloudiness, but in the earlier stages the cloudy spot may only be discovered by lateral illumination of the ophthalmoscope. By lateral illumination one can best determine the depth of the opacity. On the anterior capsule the cloudiness is whitish and gives the appearance of being built upon the surface of the capsule. The posterior is deeper situated and darker colored. The lenticular cataract, in the early stages, takes various shapes (stellate, etc.). The mature cataract is easily recognized by the white appearance of the pupils and vision reduced to light perception.

Subjective Symptoms.—If the patient is old enough he will complain of impaired vision, described as a kind of haze and floating spots before the eyes and, at times, will have annoying double vision. In senile cataract, although the patient may have been wearing glasses for years for reading he may, in a short time, find that he can discard glasses for reading, although his distant vision is very much worse. So, one should be on the alert when anyone boasts of the so-called "second sight." That individual either has a beginning cataract or was always myopic or near-sighted, and, when presbyopia sets in, at about the age of forty-five years, the near vision will gradually improve until the myopia, or near-sightedness, has been neutralized. This is why we sometimes hear of old people reading without glasses. They never had good vision to start with, but always saw things in a kind of haze. With these broad, general remarks we will take up the subject of congenital cataract.

Cause.—The most common factor is some disturbance of the forms of development of the lens which will hardly profit us to go into

here. Next in order is some intra-uterine inflammation of the eyes.

Congenital cataracts are unusually bilateral and often hereditary. I have had one family with the father, two daughters and one son all with bilateral cataract. In another family, a father and two daughters. It is seldom that congenital cataract is discovered at birth. The pupils of the new-born babe are small and they are not expected, nor do they take notice for several weeks, and the cataract is overlooked for some time.

Operation and How Soon It Should Be Done.—Operation should be done at the earliest age possible, that is to say, as soon as discovered. The longer the operation is delayed the less sensitive the retina becomes to light from non-use of the eyes. If the child is under one year of age the operation can safely be done under a local anaesthetic, but between the ages of one and six a general anaesthetic should be used, depending, however, upon the child. After six, one has only to get the confidence of the child and a local anaesthetic can be used without any trouble and with safety. For all practical purposes we can divide the operative cases into mature, or so-called soft; the over-ripe, where the entire lens substance becomes gelatinous or liquified, and the traumatic. Simple needling will be all that will be needed. The needling may have to be repeated at intervals from four to six weeks, from one to four or six times before the lens substance is all absorbed.

Instruments Used.—Speculum, fixation forceps, and needle-knife. I prefer a knife with a tapering shank in order to plug the point of entrance and avoid any escape of aqueous and collapse of iris.

Operation.—The pupil should, if possible, be widely dilated; the external parts thoroughly scrubbed and cleaned. Fortunately, in recent years, we are able to use argyrol or one of the albuminous salts of silver, ten to twenty per cent, to instill into the conjunctiva and to apply to the lashes and brow as an antiseptic, without fear of producing inflammation. The eye should then be cocaineized with four per cent solution of cocaine, the eye speculum introduced and with the fixa-

tion forceps in the left hand, the eye should be firmly held and the needle in the right hand made to penetrate the cornea near the border opposite the fixation forceps. As soon as the point enters the anterior chamber the knife handle should be lowered to avoid penetrating and injuring the iris and passed to above the middle of the pupil and the lens capsule scratched with the point of the needle, using care not to make too large an opening in the capsule, for fear that one might get too rapid and too much swelling of the lens. Atropine should be instilled and both eyes bandaged and the child put to bed. The next day, if there is no great amount of redness, change to a four-tail bandage and allow the child to get up.

The subsequent needlings, the lens capsule and the lens contents can be more thoroughly broken up, though one should be careful not to tear too great a rent in the capsule for fear of the lens escaping into the anterior chamber. While not dangerous, that is a complication not to be desired. But, in event such a thing should happen, watch it closely, and if no inflammation sets up, needle as if nothing had happened out of the usual; but if the eye begins to inflame, then extract the lens by section of cornea at once.

The other two, the tough fibrous and the secondary, or capsular, are very different propositions. The aqueous humor has very little or no perceptible effect in the way of absorption. About twelve years ago I ran into one of those tough, fibrous cases. After repeatedly needling with no perceptible effect I resolved to make a section and, if possible, remove the lens and its capsule, feeling confident I could do so, but, in the event I failed to the extent of even the loss of the eye the child would be no worse off, as there was no likelihood of her getting any vision, as everything I had previously done proved a failure. Under cocaine I made my section in the upper quadrant, introduced the forceps, as here shown, and by a side-to-side movement tore the capsule of the lens from its ciliary attachment and delivered the lens and capsule. I later operated on the other eye, and the young girl was able to attend

public school. Her vision, with correction, was 20/40.

In all, I have done sixteen extractions without a single failure. That does not mean that they all got 20/40 vision, but the vision of all of them was very much improved. They all had a clear pupil and the amount of vision, of course, depended upon the retinal sensitivity.

I prefer, if the pupil can be dilated under a mydriatic, to do the upper section, but in more than half of the cases, because of the fact that the pupil could not be dilated, I did what is called the combined operation; that is, the extraction and the iridectomy at the same sitting, rather than make two operations, iridectomy, and subsequently the extraction. I have, contrary to the usual teachings, made my section in the lower half of the cornea because I would stand a better chance of getting better vision and, somewhat to my surprise, I had very little inflammation, even in the combined operation; no more than one would expect in either class of the adult extractions. Of course, these cases were kept longer in bed and were not allowed out of their rooms for ten days or two weeks. I do not make a definite claim that this is a new operation, but, so far as I am personally concerned, it was original with me, as I have been unable to find any similar operation described. All of the so-called authorities mention the capsular forceps, but, so far as I can find, they only describe the removal of the dislocated capsule.

There are many other operations that have been done in this class of cases. (1) Passing two needles from opposite margins of the cornea to the center of the pupillary, piercing the capsule and its contents, then bringing the handle of the knives together, tearing a rent in the capsule; (2) introducing the cataract knife and cutting across the capsule with the hope the rent would be kept open by retraction of the severed ends; (3) the button-hole scissors, introduced after sections and a plug punched out, so to speak, but, in the majority of the cases they have all failed, as the hole would refill, so none of them are satisfactory.

The operation, as described and done by

me, has not had a thorough trial, as one could hardly be warranted in speaking too dogmatically on the strength of sixteen cases, though they all were successful. I realize there are elements of danger, but I don't know of any operation where the elements of danger are not present to a greater or less degree; and, with the results so far gotten by me, I do not hesitate to say that if offers, by far, the best chance of success for this class of cases. And I do not think the danger is so great; at least, it has not proven so in my hands. I think we have been too prone to look on the eye as a delicate organ and have been a little overawed by the remembrance of our teachings. Don't understand me to advocate recklessness or fool-hardiness; on the other hand, I have a wholesome respect for the delicate nature of all eye operations, but we are not to stand in awe or think that the field has been pre-empted and there is nothing new to be accomplished in the future, but must use our best judgment in each individual case.

A NEW CLINICAL CLASSIFICATION OF NEOPLASMS.*

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The history of our knowledge of pathology resembles closely the history of our knowledge of chemistry, the latter having passed through the stages in its evolution not unlike those through which pathology is now passing. Thus, prior to the epoch-making observations and generalizations of Lavoisier, chemistry was called alchemy, a science in its infancy, a science which merely described gross materials without accurate knowledge of their fundamental structural units. Many, if not all, complex substances were described by names which connoted much and denoted little, and Lavoisier states that he found it impossible to describe the facts which he observed in a language which spoke of "flowers of zine," "diaphoretic antimony," and "but-

*Presented before the Birmingham Laboratory Society, April, 1920.

ter of antimony," these terms being examples of alchemic language which was based on superficial analogies. Alchemy dealt mainly with inorganic compounds, leaving our knowledge of organic compounds still in a state of chaos. It was not until Kekule, with his analytic and constructive mind, entered the field of modern chemistry, in the process of being made, that the chaos of organic chemistry began to be clarified. He, through his knowledge of facts and a scientific imagination, analyzed and constructed organic compounds around a structural unit. He formulated the benzene ring which he diagrammatically and symbolically presented for efficient and useful understanding and utilization by his colleagues in advancing modern chemistry. Things which were complex became simple and the science of chemistry went ahead with great practical strides.

The pathology of neoplasms stands today at the stage of the evolution of chemistry in the days of alchemy; its language is based on superficial analogies; its classifications are as many as its authors; its synonyms are innumerable; it has produced chaos in the minds of those who attempt to apply it to the art and science of medicine. We find today such terms as cancer, carcinoma, lymphosarcoma, dermoid, desmoid, teratoma, psammoma, psammo-carcinoma, medullary carcinoma, scirrhus carcinoma, tubular cancer, acinous cancer, comedo-carcinoma, colloid cancer, encephaloid cancer, carcinoma gelatinosum, cancer atrophicus, alveolar cancer, sarcoma, giant-cell sarcoma, hypernephroma, and many other terms possessing connotative qualities of superficial analogies. If these words were words of denotation they would have a place in modern science, but they are words of connotation and therefore are better fitted for pure literature than for science. They are not accurately or specifically descriptive; they do not describe the facts seen in the study of fresh tissues, which are devoid of postmortem changes, and the artifacts of fixation and embedding.

It is not necessary at this time to burden you with quotations from accepted authoritative text-books to prove to you that the great diversity of conceptions of neoplasms and the

processes underlying them as well as the multitudinous and complex semi-scientific terminologies are indicative of lack of clear understanding of the subjects of neoplasia and neoplasms on the part of professional pathologists. Practical clinicians have realized this chaotic condition but have not been sufficiently trained in biologic sciences and pathology to make emphatic complaint against a group of scientists whom they have always held in great esteem. The pathologists themselves have been unable to correct and advance their science probably for three great reasons. The leaders in pathology, as a rule, have not been familiar with general biologic facts, most of them having been trained in the days of limited premedical preparation especially in biologic, physical and chemical sciences; their source of material has been the cadaver, which presents end results of pathologic processes and numerous changes due to tissue dissolution; the methods of preparation of material for microscopic study have been filled with means of producing artifacts. Most pathologists have been systematic pathologists and may well be compared with systematic ornithologists and botanists who derived their conceptions of birds and plants from stuffed skins and dried, pressed plants. They remind one of archeologists who try to reconstruct the civilizations of the ancients from imperfect traces. Such scientists have made and still make definite progress in our knowledge of pathology in spite of many handicaps and they deserve the greatest credit; they were pioneers and as such must ever be held up to present and future generations as symbols of scientific integrity and enthusiasm in the evolution of man's intellectual civilization.

But we, of the twentieth century, must not stand by as idle worshipers; we must take our inspiration from such great characters and emulate their spirit of investigation; we must construct as well as destroy; we must utilize new facts and new opportunities and adapt them to new demands. If we study the history of science we find it merely a history of observations and generalizations, both of which resulted from new conditions, new facts, new opportunities, or from some new

and clearer mind working with old conditions, facts or opportunities. It is not difficult to imagine the wave of enthusiasm which pervaded the scientific world when Friedrich II made postmortem examinations legal and thus gave new stimulus to observations and generalizations in gross anatomy and pathology. It is not difficult also to conceive of the increased scientific investigative activity aroused by Leeuwenhoek's important improvements of the microscope or the discovery of the cellular structure of plants and animals, a discovery which stimulated Virchow to found cellular pathology, which was our last great tissue pathology. We must not stop with Virchow; another opportunity has arisen in our time. Operative surgery, or shall we call it prophylactic surgery, prophylactic in the sense that it prevents end results in pathology and deals with disease in its early stages, presents to us as scientists the opportunity of seeing normal and diseased tissues without postmortem changes, especially when studied during operations. Modern methods of studying these tissues transform the cellular pathology of Virchow into cytopathology and we find the "cancer" cell is not the atypical and peculiar cell we once believed it to be.

But this is not the most important fact connected with the subject of classification which I shall present. In the presence of the living patient and the operative risk to life the slow and deliberate manner of the general laboratory and necropsy room must give way to definite knowledge quickly applied. In many cases we must decide what and how much should be done by the surgeon. He can decide, since he has been deciding for many years, but a certain percentage of his decisions were incorrect; his incorrectness was either forgotten in time or buried with the patient. It is this incorrectness which we can and should avoid. We cannot avoid it with our present conceptions of neoplasms, especially with our chaotic language of neoplasms and we have not time during surgical operations to review the whole subject of neoplasms from the standpoint of the clinical value of the multitudinous synonyms which exist in medical literature. It was the demand of

and the opportunity afforded by operative surgery which led me fourteen years ago to attempt the study of neoplasms from a biologic as well as a practical economic standpoint. Text-books of pathology were of little value in this undertaking and hence the subject was of necessity attacked regardless of previous conceptions. Without reviewing in detail the numerous observations which were made (they have been published many times) I shall proceed to state the fundamentals on which the new classification is based.

The human body is a communistic organism composed of groups of structurally and functionally different cells, all of which arise through segmentation of a fertilized single cell, the ovocyte. During the process of segmentation, cells arise which are unlike adult tissue cells. These partially differentiated embryonic cells have been described as protoblasts from which arise cells which are the immediate predecessors (textoblasts) of adult cells (textocytes). This classification of cells into parental cells, protoblasts, textoblasts and textocytes does not mean that all of the cells of each group are identical structurally or functionally, but it does mean that they form types each with a general specific evolutionary function in the development of a complex organism. Textoblasts, being the immediate progenitors of adult tissue cells (textocytes), exist in the postnatal organism in association with most tissues, especially those which are highly differentiated and specified; they are the reserve cells from which adult tissue cells arise following destruction. Some adult tissues apparently have no textoblasts but are so primitive that they still possess the power of regeneration by reverting to a textoblastic stage during such regeneration. There are other adult tissue cells which do not possess any power of regeneration, or at least possess very little, and hence when once destroyed are replaced by other tissues, usually fibrous tissue. In the human body, as in all other multicellular organisms, regeneration of tissues means reproduction of cells and reproduction of cells is called hyperplasia. A distinction must be made, however, between texto-regeneration and cyto-regeneration, both of which are cellular regen-

eration, but which result in two structurally and functionally different types of cells, one being unlike any adult tissue cell and the other being an adult tissue cell. The difference between the two cells is a difference in degree of differentiation, the one remaining undifferentiated and the other becoming differentiated. In my experience one textoblast cannot be distinguished from any other textoblast, but the textocytes differentiated from textoblasts are structurally and functionally quite different. Normal regeneration of a tissue occurs by virtue of hyperplasia of textoblasts or a reversion to the textoblastic function on the part of tissue cells; the latter form of regeneration has been described as direct regeneration in contradistinction to the other form called indirect regeneration. Hyperplasia alone is not sufficient to produce a specific tissue; the hyperplastic cells must become structurally differentiated for specific function. There is a certain time relation between hyperplasia and differentiation, the latter usually occurring rapidly after hyperplasia. Under normal conditions of regeneration, in the process of normal repair of loss of tissue, hyperplasia and differentiation go closely hand in hand. Under certain other conditions, following loss of specific tissue, hyperplasia occurs more rapidly than differentiation, hence a mass of hyperplastic cells is formed, and a neoplasm is produced. The cells of this mass may remain undifferentiated, become partly differentiated, or become completely differentiated. In the first condition they remain textoblasts; in the second condition they are pseudo-textocytes; and in the third condition they are textocytes. The mass of cells (the neoplasm) may be spoken of as a textoblastoma, a pseudo-textoma or a textoma, depending on the absence, incompleteness, or completeness of the differentiation. The size of the neoplasm depends on the time relationship between the rate of growth (hyperplasia) and the rate of differentiation. The more rapid the hyperplasia and the less rapid the differentiation, the greater the increase in size of the neoplasm. The higher the degree of differentiation and the more rapid the rate of differentiation, the less the rate of growth. In view of these

fundamental facts relative to hyperplasia and tissue differentiation, all neoplasms may be divided into three groups—that is, textoblastoma, pseudotextoma, and textoma:

Group 1.—Textoblastomas or blastomas embrace all neoplasms which are composed of cells which are so undifferentiated that it is impossible positively to recognize the textocytes into which they would develop if differentiation occurred. They are neoplasms, the principal cells of which do not resemble any adult textocytes in the organism. Such neoplasms occur in practically all parts of the human body; they are usually, if not always, soft, vascular, cellular tumors possessing the power of rapid growth, invasion of neighboring tissues, and metastasis. They have been called sarcomas, but all the neoplasms in the literature which have been called sarcomas do not belong to this group, since many consists of cells which are partially differentiated and hence belong to the next group, the pseudotextomas. The last fact accounts for the great variation in rapidity of growth of sarcomas reported in the literature, also for the utilization of such modifying terms as giant-cell sarcoma, melanosarcoma, myosarcoma, osteosarcoma, carcinosarcoma, alveolar sarcoma, psammosarcoma and other equally unscientific connotative terms which have been so productive of chaos in the minds of practitioners of medicine.

Group 2.—Pseudotextomas embrace all neoplasms which are composed of partially differentiated cells and hence resemble somewhat some normal adult tissue cell of the organism. Such cells, however, do not have the exact morphology of adult textocytes, although they may be arranged similarly to the normal arrangement of some adult tissue. Thus the partially differentiated cells may be arranged in planes as the cells lining the alimentary tract, blood vessels, ducts or the epidermis of the skin; they may line a sphere or a portion of a sphere such as the acini of the glands. The cells may be arranged with or without having their long axes parallel or forming the radii of a sphere. In the language in the literature they embrace the so-called adenocarcinomas, adenosarcomas, alveolar sarcomas, spindle-cell sarcomas, fibro-

sareomas, many forms of hypernephromas, and the malignant adenomas, fibromas, epitheliomas and papillomas. Many pathologists have been responsible for this rather loose terminology because they were unfamiliar with the normal textocytes of the organism and were handicapped by the lack of opportunity of studying normal tissue cells and cells of neoplasms in a perfectly fresh unfixed condition. Their terminology is a low-power terminology, and while adequate enough for crude purposes, it does not suffice for modern cytology and operative surgery.

Group 3.—Textomas embrace all neoplasms which are composed of cells sufficiently differentiated to be morphologically identical with or distinguishable from normal adult tissue cells (textocytes). In the production of such neoplasms the differentiation is apparently complete, but the rate of differentiation is just a little slower than the rate of hyperplasia, hence the neoplasm continues to grow; but as the result of the close proximity of the two rates the growth is slower than that of pseudotextomas and textoblastomas, in which the rate of differentiation is slow or there is no differentiation. Some of the neoplasms termed adenomas, fibromas, myomas, osteomas, and chondromas in the literature belong to this group, but many of the neoplasms under these terms belong to the group of pseudotextomas; hence the great difference in rates of growth and clinical behavior of many of these neoplasms. Two or more pathologists may agree that two given neoplasms are adenomas or fibromas when they study these specimens without an oil immersion lens, but frequently when such neoplasms are studied in the perfectly fresh condition with oil lenses by a pathologist familiar with normal tissue cells and the facts of neoplasia and cellular differentiation, the neoplasms are found to be quite different; the one is found to be composed of completely differentiated cells, and the other to be composed of partially differentiated cells, the latter being associated with more rapid growth.

What is the practical significance of this classification of neoplasms? It consists of three words, each of which possesses the quality of denotation based on fundamental biologic

facts relative to cellular reproduction, differentiation of tissues, the conception of a mass or tumor and biologic behavior responsible for clinical behavior. One group, the blastomas, grows rapidly; another group, the pseudo-textomas, grows less rapidly, and the third group, textomas, grows least rapidly. One is relatively malignant, another is relatively less malignant, and the third is relatively least malignant; or one, the textomas, is relatively benign, another, the pseudotextomas, less benign, and the third, the textoblastomas, the least benign. These are the facts which we desire to have in dealing with patients. We do not desire a long list of connotative names with numerous synonyms and interpretations.

The terms pseudotextomas and textomas be modified if we positively know the tissue or tissues which their cells resemble or simulate. For example, the diagnosis may be—pseudotextomas or textomas:

Adeno-, audito-, cardiomyo-, chondro-, endothelio-, epithelio-, erythro-, fibro-, glio-, gusto-, leiomyo-, leuko-, lipo-, lympho-, melano-, myo-, myxo-, neuro-, odoro-, osteo-, pilo-, rhabdomyo-, sebo-, tactilo-, tendo-, veno-, etc.

For practical purposes in the practice of medicine these modifying prefixes have no great value with our present knowledge, but in the future they may be of value because further study doubtless will show that the rates of hyperplasia and differentiation vary with the different types of tissue. This, however, is too speculative to concern us at present in our immediate desire to place our present knowledge on a useful, accurate, scientific basis. The prophecy merely serves as a stimulus to further investigation.

The question now arises: Is this departure from our much honored traditions to be accepted by our generation? History of other departures in science may assist us in answering the question. It took years for the nomenclatures and classifications of Linnaeus, Lavoisier and Kekule to become fixed in the minds of scientists. Doubtless this departure will suffer the same fate as Mendel's law of heredity, which lay dormant awaiting rediscovery or resurrection a generation later.

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee

Office of Publication, 327 7th Ave., N., Nashville, Tenn.

FEBRUARY, 1921

EDITORIALS

EIGHTY-EIGHTH ANNUAL MEETING OF THE TENNESSEE STATE MEDICAL ASSOCIATION.

The eighty-eighth annual meeting of the Tennessee State Medical Association will be held at Nashville on April 12, 13 and 14, 1921, under the presidency of Dr. L. L. Sheddan, of Knoxville.

There are few societies of any kind which have held eighty-seven annual meetings, and the medical societies with as long a record of continuous service as that of the Tennessee State Medical Association are very few indeed. The very fact that the coming meeting is to be the eighty-eighth annual meeting should stimulate a determination upon the part of every man in the whole society to make the meeting a wonderful success, and every year between this good year and that one which will mark the centennial year of the Association should see increased effort expended to the end that when the one hundredth anniversary comes it will be celebrated in a really glorious manner.

The eighty-eighth annual meeting will be called to order promptly at ten o'clock a. m. on Tuesday, April 12. The place of meeting and the details of arrangements will be announced in the March Journal.

The program for the scientific sections is now being prepared. Only two papers have been offered for presentation before the general session up to the time of this writing. There is ability enough in our membership to put on and carry through a scientific program that can hardly be excelled in any medical organization in this land. It is hoped that there will be a quick response to the request, which is here repeated, for well prepared pa-

pers on well chosen subjects. There has never been a time when there have been so many matters of general interest to the profession which can be considered with profit to our entire membership.

An effort will be made to secure reduced railroad rates for the Nashville meeting, and the success or failure of this effort will be announced in next month's Journal. The attendance at Nashville should not be less than five hundred.

THE NASHVILLE PROGRAM.

The program for the eighty-eighth annual meeting has gotten a start. The presidential address, by Dr. L. L. Sheddan, will be delivered on the morning of the first day, unless it be the pleasure of the Association to arrange otherwise.

Dr. J. J. Shea, Vice-President, will discuss the subject, "Vertigo," and his paper will be followed by one from Dr. R. C. Bunting, on "Is the Baranay Test of Any Diagnostic Help to Us?" These two papers will be discussed, in opening, by Drs. E. C. Ellett and Louis Levy. Dr. R. H. Perry, Nashville, has sent in his subject, "Septic Infections of the Urinary Passages in Children." With these the program has a start, and it is hoped that others will send in their subjects at the earliest possible time.

Dr. Louis Levy, Secretary of the Section on Eye, Ear, Nose and Throat, has advised the Journal that the members of the Section will attend clinics at St. Thomas Hospital, beginning at 9 a. m. Tuesday, April 12, and lasting throughout the first day. At six o'clock Tuesday evening the annual dinner of the Section will be given. At eight a. m. Wednesday, April 13, the scientific program of the Section will be taken up and continued until finished.

The Section on Eye, Ear, Nose and Throat will have as its guest at the coming meeting Dr. John B. Green, of St. Louis, whose address will be on the subject, "Tonometers and Tonometry." Dr. Green has won distinction through the very splendid work he has done in his chosen specialty and our Association

will be honored by having him present and participating in its scientific work.

Please remember that it takes time to prepare and have printed the program for an annual meeting. It will be necessary for the Secretary to have all subjects in hand not later than April 2.

A CORRECTION.

There appeared in the January number of the Journal an article by Dr. P. G. Morrissey, of Nashville, in which a statement attributed to Dr. G. R. Livermore has been found to be in error. Upon the matter being called to Dr. Morrissey's attention, he wrote the following letter, which he has asked to have appear in the Journal. Dr. Morrissey does not so state in his letter, but has stated to the Editor, that he saw such a statement attributed to Dr. Livermore in some publication, and accepted it. His examination of Dr. Livermore's original article, however, disproves the statement, and Dr. Morrissey hereby makes retraction and offers his apology for the error:

"January 24, 1921.

"Dr. Olin West, Editor, Nashville, Tenn.

"Dear Doctor: In the January issue of the State Journal an article by me on the treatment of chaneroids, Dr. Livermore of Memphis is quoted as saying that an ounce of argyrol crystals would cure all the chaneroids in the United States.

"This was an error and an injustice to Dr. Livermore, inasmuch as he makes no such claims. He advocates the use of sylvol crystals and states that this agent combined with other measures gives better results than any other single remedy he has used.

"I feel that an apology is due Dr. Livermore, and will thank you to publish this in the next issue of the Journal.

"With best wishes, I am, yours truly,

"P. G. MORRISSEY."

THE BRIDLE OFF.

The Supreme Court of Tennessee, through its Chief Justice, Hon. D. L. Lansden, has handed down an opinion which, in effect, vir-

tually legalizes "chiropractic" in this state. This opinion was delivered by Justice Lansden just a few days before his departure for Texas, where he has gone, as we are advised, for the benefit of his health.

As we understand it, Justice Lansden's opinion, delivered in the final determination of a case instigated by the State Board of Medical Examiners, holds that the "chiropractor" is not in violation of law as long as he does not prescribe medicines nor administer medicines. So there we are! And there the people of Tennessee are! And, sitting on top of the world in this great state of ours, there the "chiropractors" are!

Unless our memory serves us badly, it has been not more than a year or two since this same Supreme Court rendered an opinion which Chief Justice Lansden's opinion exactly reverses. There have been no changes in the laws concerned within that time, and there have been no startling advances made in the great modern science of "chiropractic," insofar as we are advised, nor any revolutionary changes in the methods of the backbone manipulators. It seems, therefore, that the only change worth noting in this whole matter is that more or less remarkable change in the mind of the Court, through which it comes about that what was illegal a year or two ago is now altogether in keeping with a law which is unchanged.

PERSONNEL OF EXAMINING BOARDS.

In response to a request recently received we are again publishing the names and addresses of the State Board of Medical Examiners and the President of the Board of Preliminary Examiners.

The Secretary of the State Board of Medical Examiners is Dr. A. B. DeLoach, Exchange Building, Memphis, and other members are: Dr. Nat Dulaney, Bristol; Dr. W. L. McCreery, Knoxville; Dr. C. A. Abernathy, Pulaski; Dr. B. L. Simmons, Nashville; Dr. H. W. Qualls, Union City.

Prof. Wharton Jones, Superintendent of City Schools, Memphis, is the President of the State Board of Preliminary Examiners.

WHAT SHALL WE SAY?

There have been many rumors floating around to the effect that one or more bills will be introduced in the present session of the state Legislature having for their purpose the modification of the medical practice laws of the state.

It seems that there are those, in the Legislature and outside, who believe that there is a scarcity of physicians in Tennessee, and they attribute this condition, real or fancied, to the fact that our laws as they now stand require that applicants for license to practice medicine in Tennessee shall be graduates of medical schools with high entrance requirements. Some have said that it is virtually impossible under our present laws for a "poor country boy"—they always put in that "country"—to get into the practice of medicine. It is also said that the people in some of our counties are suffering severely because there are not enough doctors in these counties and that there never will be enough until the standards are lowered.

What shall the medical profession of Tennessee say to the Legislature if it be proposed to change the medical practice acts of the state?

The laws of Tennessee which have been enacted for the protection of the people from quacks and incompetents were enacted upon the suggestion of the medical profession, and had absolutely no other purpose intended than that the public should have protection against the unscrupulous and the incompetent. To lower standards to an extent which will make them lower than the standards of other states will destroy, to a greater or less extent, the protection that Tennessee's people now enjoy and will make it impossible for the profession of the state as a whole to measure up to the profession in other states which will continue to maintain their present requirements. The matter of reciprocity relations with other states will undoubtedly be affected by any modification of our laws which makes it easier for graduates of low grade schools to secure license in this state.

There is a great deal that might be said in the discussion of the various matters involved

in this general subject, but after all is said, these facts remain: The legislature is supposed to represent the people of Tennessee and is supposed to give expression to the wishes of the people in the laws enacted. If the laws now existent are not to the liking of the legislature and the people represented by the legislature it is because they believe they know better than the medical profession knows what is best.

Then what shall be the attitude of the profession of Tennessee towards any changes in our medical practice acts, through which present standards will be reduced?

MEDICAL DEFENSE IN 1920.

Dr. S. R. Miller, Chairman of the Committee on Medical Defense, reports that 1,296 members paid the medical defense assessment for the year 1920. In the preceding year only 937 members availed themselves of the protection offered through the medical defense feature of the Association. Slowly but surely the value of medical defense is being realized by the physicians of our society, and we are encouraged to believe that in another year or two all members will participate.

The following statement prepared by Dr. Miller shows the number in each county society who paid the medical defense assessment for the last year:

MEDICAL DEFENSE FEES RECEIVED DURING THE YEAR 1920.	
Anderson County -----	11
Bedford County -----	13
Bradley County -----	16
Blount County -----	20
Campbell County -----	24
Carroll County -----	5
Chester County -----	4
Cocke County -----	3
Cumberland County -----	3
Coffee County -----	6
Davidson County -----	183
Dickson County -----	9
Dyer County -----	21
Franklin County -----	7
Gibson County -----	21
Giles County -----	4
Greene County -----	28
Grundy County -----	7
Hamblen County -----	16
Haywood County -----	8

Hamilton County -----	92
Henderson County -----	10
Henry County -----	1
Hickman County -----	13
Jackson County -----	7
Jefferson County -----	12
Knox County -----	123
Lake County -----	1
Lauderdale County -----	28
Lincoln County -----	18
Loudon County -----	8
McMinn County -----	5
McNairy County -----	15
Macon County -----	7
Madison County -----	33
Marshall County -----	9
Maury County -----	35
Monroe County -----	15
Montgomery County -----	10
Obion County -----	8
Overton County -----	6
Polk County -----	10
Putnam County -----	14
Rhea County -----	1
Roane County -----	13
Robertson County -----	5
Rutherford County -----	8
Scott County -----	10
Shelby County -----	245
Smith County -----	7
Sumner County -----	16
Tipton County -----	27
Washington County -----	25
Weakley County -----	14
White County -----	14
Williamson County -----	7
Wilson County -----	3
Warren County -----	3
Morgan County -----	5
DeKalb County -----	4
Total -----	1,296

MEDICAL BIOGRAPHY, ET CETERA. (Continued.)

Some of the discoveries and inventions and teachings which have proved to be of supreme medical importance, and on which much of modern practice is based, have been products of the mind and the work of men who were not themselves physicians. Louis Pasteur was a chemist, but his researches established principles and practices which appear to be permanently established and which have determined the course of modern medicine far more than any other influence has done.

Pasteur was born at Dole, France, in 1822, the son of a tanner, and died in 1895. He received his doctor's degree from Sorbonne, the great French university, in 1847 and was afterward a teacher of chemistry in various schools. In 1867 he was made professor of chemistry in his alma mater and served there until 1875, when he retired because of paralysis which affected both his powers of locomotion and of speech.

The first really great work of Pasteur was perhaps, that which resulted in his discovery of the causes of fermentation and proved to be the foundation for all of his later discoveries. Liebig, the noted German chemist, held that fermentation was purely chemical change, due to the action of the oxygen of the air on fermentable substances, and his teaching was universally accepted until its fallacy was demonstrated by Pasteur. This demonstration was not accomplished, however, without fierce struggle. It seems to be unescapable for any great scientific truth to become accepted except it has gone through the fires of opposition lighted by all sorts of opponents for all sorts of reasons—some based on good grounds, others based on pure selfishness. And so, also, has it always been that a great movement of any nature designed for the promotion of human welfare has to run the gauntlet of criticism, abuse, ridicule and obstructions of all kinds, many of which have been placed in the way by selfish men. It is better so, because that discovery or that movement which can survive such attacks is all the more firmly established and its benefits all the more certainly assured.

It is said by some biographers that Pasteur's work on fermentation was done upon the instigation of certain German brewers who were encountering troubles with their making of beer, while others maintain that his researches were conducted in the course of his general work because of some suggestion which casually presented itself. However that may be, Pasteur finally and conclusively established the nature of fermentative processes and, in doing so, finally overturned the centuries'-old theory of spontaneous generation, destroyed the teaching of the great Liebig, withstood the condemnation of the whole

Academy of Sciences, which organization very severely censured him, a chemist, for dabbling in biology, and refuted the claims of Pouchet, whose announcement of his observation and proof by experiment of the lowest forms of life without preceding germs was loudly proclaimed and widely accepted. Pasteur's dictum, "Life can only proceed from other life" was rejected by the Academy of Sciences, but he finally rammed it down their throats.

While all the fierce controversy above referred to was still in progress, Pasteur was called upon to attack another problem which had to be solved in order that a great French industry might be saved from destruction which seemed imminent. A plague had been among silk worms in France and the great Dumas, who was getting old, had tried in vain to find its cause and to stay its ruinous effects, but without success. He called on Pasteur to take up his task, but he refused the commission because, he said, he had never seen a silk-worm. Dumas appealed to him, however, on the basis of patriotism—told him he must do the thing for France. Pasteur yielded to this plea and established himself in a little hut in the silk worm region, from which he soon reported that there were two distinct diseases responsible for the conditions which threatened to put an end to a great national industry and that they were both due to parasites which infested the silk worms. He was laughed at and ridiculed and humiliated by scientists and by the silk worm growers themselves, but he persisted and showed that he was right by producing healthy worms and keeping them healthy. This second success encouraged Pasteur to continue and enlarge his studies of parasites.

During his struggles to establish great scientific principles and truths, Pasteur had received no public aid whatsoever, but after he had retired from the University in 1875 because of his paralysis, he was pensioned by the French government and other nations also gave practical acknowledgement of the benefits of his labors. He then was enabled to turn his attention to the study of diseases of animals and of men and directed his efforts to the discovery of a specific germ for each

disease. Acting on that principle, he mastered chicken cholera, anthrax and other deadly diseases in animals, and made great forward steps in the study of human diseases. He finally announced, when 63 years old, his anti-rabic serum, which was the most widely heralded of all his many great achievements.

Pasteur's work on germs, their characteristics and specific identities, on the influence of environment on germ life and reproduction, on immunity, on inoculation, on parasitology, and on disease prevention generally was, any of it, great enough in conception and in achievement to entitle him to a place among the immortals. He was a great worker, a great student, a great observer, a great fighter and a great winner, and was a great man. He had the ability to achieve success and yet to withstand flattery and fulsome praise, which tend to make the near-great really very small because they cannot resist it.

The doctor who has not read the story of the life and work of Louis Pasteur is an uneducated doctor without the right sort of pride in his profession.

(To Be Continued.)

THE SECTION PROGRAM.

Just as we were getting ready to close our forms Dr. Louis Levy, Secretary of the Section on Eye, Ear, Nose and Throat, sent us the completed program for the Section for the eighty-eighth annual meeting to be held in Nashville, April 12, 13, 14. It appears to be a splendid program, and we are inserting it in the February Journal in order that all interested may know just what is to be considered by the Section and prepare themselves accordingly. We would be glad if the program for the general scientific section were one-half complete, which it is not. Dr. Levy has shown himself to be a splendid secretary by having his program all worked out and ready nearly two months before the meeting, and the members of the Section have shown a splendid spirit and interest in the work of the Association by making it possible for him to have the entire program ready for publication so early.

Program for Eye, Ear, Nose and Throat Section of the Tennessee State Medical Association.

Tuesday, April 12.—Eye, Ear, Nose and Throat Clinic held by Nashville Society, beginning at 9 a. m., and lasting throughout the day; clinics to be held at St. Thomas Hospital. (See enclosed program of same.)

At 6 p. m., Section dinner (place to be announced later).

8 O'Clock P. M.

1. Chairman's address, Dr. E. C. Ellett.
2. "Tonometry and Tonometers," Dr. John Green, St. Louis, Mo.
3. "Original Method of Advancement of the Ocular Muscles," Dr. O. Wilkinson, Washington, D. C.
4. "End Results of Tonsilectomies," Dr. M. M. Cullom, Nashville, Tenn. To open discussion: Dr. J. C. Broyles, Johnson City, Tenn., and Dr. O. Dulaney, Dyersburg, Tenn.

Wednesday, April 13, 9 A. M.

1. "Glaucoma Operations," Dr. S. T. Hubbard, Chattanooga, Tenn. To open discussion: Dr. E. B. Cayce, Nashville, Tenn., and Dr. B. F. Travis, Chattanooga, Tenn.
2. "Cataract Operations," Dr. W. W. Potter, Knoxville, Tenn. To open discussion: Dr. J. T. Herron, Jackson, Tenn., and Dr. G. M. Peavler, Bristol, Tenn.
3. A paper, Dr. Hilliard Wood, Nashville, Tenn. To open discussion: Dr. G. C. Savage, Nashville, Tenn., and Dr. E. C. Ellett, Memphis, Tenn.
4. "Modern Ideas in Treatment of So-Called Chronic Catarrhal Deafness with Special Reference to the Symptom of Tinnitus Aurum," Dr. Richmond McKinney, Memphis, Tenn. To open discussion: Dr. L. M. Scott, Jellico, Tenn., and Dr. M. M. Cullom, Nashville, Tenn.
5. "Sphenoidal Sinusitis and Report of Cases," Dr. J. M. Hogshead, Chattanooga, Tenn. To open discussion: Dr. W. G. Kennon, Nashville, Tenn., and Dr. A. C. Lewis, Memphis, Tenn.
6. "The Value of Protein Sensitization in Asthma and Hay Fever," Dr. J. J. Shea, Memphis, Tenn. To open discussion: Dr. H. E. Christenberry, Knoxville, Tenn., and Dr. F. J. Hackney, Chattanooga, Tenn.
5. "The Heath Operation and After Care,"

Dr. W. L. Simpson, Memphis, Tenn. To open discussion: Dr. C. D. Blassingame, Memphis, Tenn.

Your attention is called to the ruling of the reading of papers being limited to twenty minutes, the opening of discussions to ten minutes, and subsequent discussions to five minutes.

Clinical Program, Tuesday, April 12, 1921.

8:45 a. m.—Cars will leave Hermitage Hotel and Tulane Hotel for St. Thomas Hospital.

9:00 a. m.—"Tonsilectomy and Adenectomy," Dr. Herschel C. Ezell; "New Antrum Operation," Dr. E. L. Roberts; "Frontal Sinus Operation," Dr. Jere Caldwell; "Enucleation of Eyeball," Dr. Leslie Bryan; "Mastoidectomy, Local," Dr. Robert Sullivan; "Enucleation of Eyeball," Dr. D. B. P'Pool; "Tonsilectomy and Adenectomy" and "Extirpation of Lacrimal Sac," Dr. Eugene Orr.

10:00 a. m.—"Submucous Resection" and "Tonsilectomy and Adenectomy," Dr. M. M. Cullom; "Cataract Extraction" and "Radical Mastoidectomy," Dr. E. B. Cayce; "Operation for Glaucoma," Dr. Hilliard Wood; "Cataract Extraction," Dr. Geo. H. Price; "Mastoidectomy," Dr. John M. Moore; "Operation for Glaucoma" and "Cataract Extraction," Dr. G. C. Savage.

11:00 a. m.—"Gasserian Ganglion Injection," Dr. H. H. Martin, Savannah, Ga.; "New Technic for Advancement of Ocular Muscles," Dr. O. Wilkinson, Washington, D. C.

12:00 m. to 2:00 p. m.—Luncheon at St. Thomas Hospital.

2:00 p. m. to 4:00 p. m.—Exhibition of cases by members of the local Society, including the result of trachoma treatment, Dr. J. P. Crawford.

CHANGING TIME.

There are those who call us old-fashioned, but a few of us maintain that we need to get back to a saner business of life. We need to reappraise and re-establish some of the older and more sound social valuations. Right now, it appears, human conduct is at its low ebb.

In our recent state and national political campaigns meaner and more vicious subter-

raucous electioneering, more vituperation, was indulged in than became those who should have made an honest effort to discuss real issues constructively.

The profiteer, in a society with higher evaluations of social standards than ours during the past few years, would not have dared to operate. A profiteer cannot exist except there be an opportunity and the sanction of society.

The strike of the firemen of Memphis, the strike of the Boston policemen, were not even imaginable a few years ago. In almost any condition in which men are associated as representatives of the public service, there is room for complaint of a breaking down of morale from inefficiency to recklessness and to criminality. Even one who attempts honesty and square dealing, at times has his intentions misrepresented or misconstrued.

Still closer to us we have conditions which call for changes. We hardly know whether the peek-a-boo waists, silk stockings, livid, bright rouge, bobbed hair fluffed in the latest bush-man manner, are being displayed by the daughter of one of our leading families or by the demi-mondaine. Our sons and daughters ride to the high school or even the grammar grades, in automobiles. All of the mischievousness which used to be reserved for college is now expressed in high school; all of the pleasure of the mystery of secret fraternities is exhausted before college days, and youth is blasé at sixteen. "Chaperon" is a word known to the investigators of the dictionary only.

Money and power have come to be assumed as the measure of success, and we no more ask by what road did a man come to his place in society or whether ruined lives and broken hearts mark his path.

In our commercial entertainments it must be "Up in Mabel's Room" or "A Woman's Sin," to be successful. A dance without a series of suggestive movements creates not enough interest even to amuse. A song without "Sweet Daddy" may be played at the Ladies' Aid, but never in the parlor of one of the younger set.

We need changes from these things. Verily, it is changing time.

When modesty in young women is given social sanction; when simplicity replaces ostentation; when the public demands that public servants make their obligations sacred, then the attendant objections will disappear, and we will have more sweetness and simplicity and dignity and loving-kindness, and the home will again become the corner stone of society and therefore preserved and exalted.

Yes, some say it is old-fashioned. But if it be old-fashioned to love truth, to linger a bit on the way to gather a flower, to take to a friend; to strive less for speed and more for broad living; to make a part of one's treasure the good will and esteem of men; even to miss a movie to hold the fever-parched hand of a friend for the sake of simple friendship, then let us be old-fashioned. H.

OUR COUNTY SOCIETIES

ROBERTSON COUNTY.

A number of Robertson County physicians met in Springfield on the third Tuesday in December and reorganized the Robertson County Medical Society, with Dr. W. Bruce Dye, Springfield, President; Dr. J. W. Thomas, Cross Plains, Vice-President; and Dr. B. B. Sory, Cedar Hill, Secretary-Treasurer. The regular monthly meeting for January was held in Springfield, with a good attendance. Dr. W. W. Winters, of Greenbrier, read a most interesting paper on "Fractures."

We regret very much to have to report the death of Dr. Wm. Royster, of Turnersville, who died at St. Thomas Hospital in Nashville on January 20, following an operation for gastric ulcer. Dr. Royster was a good and useful member of the Robertson County Medical Society, and we feel that we have lost one of our very best fellows.

Enclosed you will please find check for \$39 for annual dues for the following named members: Drs. W. B. Dye, W. W. Porter, M. L. Bradley, B. F. Fyke, Springfield; G. R. Jones, Orlinda; W. W. Winters, T. L. Johnson (honorary), Greenbrier; J. R. Connell, Adams; B. B. Sory, Cedar Hill.

B. B. SORY, Secretary.

WILLIAMSON COUNTY.

Dr. K. S. Howlett, Secretary of the Williamson County Medical Society, reports the following members who have paid 1921 dues: Drs. Dan German, J. O. Walker, B. T. Nolen, Sam White, K. S. Howlett, Franklin; G. C. Paschall, Arrington; W. W. Graham, College Grove.

Officers for 1921 are: President, Dr. Dan German; Vice-President, Dr. J. O. Walker; Secretary-Treasurer, Dr. K. S. Howlett.

BEDFORD COUNTY.

Dr. W. H. Avery, Secretary of the Bedford County Medical Society, has reported the names of the following members for 1921 enrollment: Drs. T. R. Ray, J. L. Morton, T. J. Coble, G. W. Moody, S. S. Moody, W. T. Robinson, G. E. Horton, W. H. Avery, Shelbyville; J. P. Taylor, J. H. Dyer, Wartrace; G. L. Landis, Unionville; R. E. Shelton, Lynchburg.

ROANE COUNTY.

At the regular meeting of the Roane County Medical Society on December 21, 1920, the following officers were elected for the year 1921: President, Dr. Thos. H. Phillips, Rockwood; Vice-President, Dr. H. M. Carr, Harriman; Secretary, Dr. G. P. Zirkle, Kingston; Treasurer, Dr. John Roberts, Kingston; Delegate to the Tennessee State Medical Association, for two years, Dr. G. P. Zirkle.

Our December meeting was one of the best held during the year, and the attendance was well above the average. The societies from two adjoining counties, Morgan and Anderson, were invited to meet with us, and both of the two societies were represented. Dr. L. L. Sheddan, President of the Tennessee State Medical Association, favored us with his presence and gave us a good talk on the subject, "Cancer." Lunch was served to the members and visitors present, and all voted the day to have been well spent.

Eleven members have paid dues for 1921, and a list of their names, with check for the amount due, is enclosed: Drs. Thos. H. Phillips, J. C. Wilson, G. E. Wilson, E. S. Phillips, Rockwood; J. J. Waller, Oliver Springs; W. E. Gallion, Oakwood; G. F. St. John, W.

W. Hill, E. F. Dodson, H. M. Carr, Harriman; John Roberts, G. P. Zirkle, Kingston.

G. P. ZIRKLE, Secretary.

HAMBLLEN COUNTY.

The Hamblen County Medical Society met in regular session on December 14, 1920. A delightful banquet was tendered the society by Dr. W. E. Howell, the retiring president. After full enjoyment of this occasion the society heard a very interesting paper on "Cancer," read by Dr. P. L. Henderson. During the discussion of cancer it was brought out that only one class of persons is immune—namely, vegetarians. So far as we are now advised, there is only one vegetarian in our entire county. Please let us know what you think of this proposition.

The following officers were elected for 1921: President, Dr. J. W. Pierce, Tate; Vice-President, Dr. F. F. Painter, Morristown; Secretary-Treasurer, Dr. C. T. Carroll, Morristown; Delegate, Dr. D. E. Shields, Morristown; Alternate Delegate, Dr. W. E. Howell, Morristown.

The Hamblen County Medical Society has been having good meetings, with good attendance.

Dr. I. D. Walker, Alpha, one of our good members, has been very sick for some time and we are sorry indeed to have to report that his condition is not improved at this time.

Below you will find a list of members reported up to this date, and a check is enclosed for dues and medical defense assessments: Drs. D. E. Shields, W. G. Ruble, L. H. Milligan, W. E. Howell, P. L. Henderson, P. L. Brock, S. M. Ryburn, F. F. Painter, C. T. Carroll, all of Morristown; J. W. Pierce, Tate; I. D. Walker, Alpha.

I hope to be able to forward additional names in a short time.

C. T. CARROLL, Secretary.

(Editor's Note: A very distinguished man has written a book in which he stresses the importance of diet as a causative factor in cancer, and in which he leans to the theory that a vegetable diet is somewhat preventive.)

RUTHERFORD COUNTY.

Dr. J. A. Scott, Secretary of the Ruther-

ford County Medical Society, has sent in the following names for 1921, with annual dues for all and medical defense assessments for all but two: Drs. J. S. Allen, A. J. Jamison, J. C. Overall, B. N. White, E. B. Allen, M. B. Mumfree, J. A. Scott, C. E. Tubb, W. T. Robison, V. S. Campbell, all of Murfreesboro; S. L. Wiles, R. 5, Murfreesboro; T. M. Smoot, Woodbury; J. T. Harris, Walter Hill; J. J. Rucker, Overall.

CAMPBELL COUNTY.

Dr. O. L. Richmond, Secretary of the Campbell County Medical Society, has reported the following members for 1921 enrollment: Drs. S. D. Queener, Jacksboro; W. B. Rose, L. M. Scott, Jellico; W. H. Longmire, W. L. Cooper, G. M. Rodgers, LaFollette; F. A. McClintock, Newcomb; G. B. Brown, Elk Valley.

TIPTON COUNTY.

The Tipton County Medical Society met on Thursday, January 20, and elected officers as follows: President, Dr. B. V. Dickson; Vice-President, Dr. N. R. Newman; Vice-President, Dr. J. F. Frasier; Secretary-Treasurer, Dr. J. F. Myers.

SUMNER COUNTY.

Dr. Homer Reese, Secretary of the Sumner County Medical Society, reports the election of the following officers for 1921 and promises to collect dues from all his members and send in the money "when collections pick up." President, Dr. W. H. Wynne; Vice-President, Dr. W. T. Allen; Secretary-Treasurer, Dr. Homer Reese; Delegate, Dr. L. M. Woodson; Alternate Delegate, Dr. J. R. Parker.

HAYWOOD COUNTY.

Dr. J. L. Edwards, Secretary of the Haywood County Medical Society, has reported the following named members for 1921 enrollment: Drs. G. T. Scott, J. T. Allen, J. C. Norvelle, E. R. Mulherin, G. C. Mulherin, T. C. Chapman, J. L. Edwards.

The officers are: Dr. G. T. Scott, President; Dr. J. C. Norvelle, Vice-President; Dr. J. L. Edwards, Secretary-Treasurer.

HICKMAN COUNTY.

The 1921 report of the Hickman County Medical Society shows eight members enrolled, as follows: Drs. J. B. Webb, Goodrich; E. N. Springer, Hohenwald; W. D. Cagle, Lobelville; R. P. Beasley, Lyle; A. N. Gordon, Little Lot; J. S. Beasley, W. K. Edwards, C. V. Stephenson, Centerville.

Dr. J. B. Webb is President, and Dr. C. V. Stephenson is Secretary-Treasurer.

SCOTT COUNTY.

Dr. D. M. Woodward, Secretary of the Scott County Medical Society, has sent in the names of eight members of his society, with a check for 1921 dues and medical defense assessments. Dr. Woodward states that there are two other physicians in the county who have not yet paid their dues, but he thinks they will do so.

The members for Scott County are: Drs. D. T. Chambers, Norma; D. M. Woodward, Wiona; J. I. Foster, Huntsville; T. L. Phillips, E. M. Thompson and F. M. Boyatt, Oneida; W. W. Foust, Robbins; Pitney Phillips, Glen Mary.

DICKSON COUNTY.

Nine members have been reported for 1921 by Dr. W. J. Sugg, Secretary of the Dickson County Medical Society. All but two have paid medical defense assessments.

Drs. J. E. Mathis, Burns; L. F. Loggins, Charlotte; A. C. Dickson, Van Leer; W. S. Scott, H. C. Guerin, W. W. Walker, W. J. Sugg, H. Weaver, and C. M. Lovell, Dickson, are the members reported.

Officers of the Dickson County Society are: Dr. G. C. Cannon, President; Dr. H. C. Guerin, Vice-President; W. J. Sugg, Secretary; C. M. Lovell, Delegate; W. S. Scott or W. W. Walker, Alternate Delegate.

LAUDERDALE COUNTY.

Dr. J. W. Sanford, Secretary of the Lauderdale County Medical Society, sends in nine names of members, and says: "I will do my best to get all our members paid up"—which means that there will be some fifteen or more names added to the 1921 roll, because Dr. Sanford always "gets 'em." Those re-

ported from Lauderdale to date are: Drs. C. R. Morrison, R. 1, Curve; W. H. Tucker, R. F. D., Halls; J. L. Dunavant, R. F. D., Henning; W. K. Lackey, J. R. Lewis, W. V. Sanford and J. W. Sanford, Ripley; T. E. Miller and J. R. Osteen, R. F. D., Ripley.

IN MEMORIUM.

DR. S. W. McFARLAND.

On the evening of December 14, 1920, at about 10 o'clock, Dr. S. W. McFarland, while attending a professional call, was suddenly stricken with apoplexy, from which he died about three hours later.

Dr. S. W. McFarland was born and reared in Wilson County, Tenn., being the son of Dr. J. W. McFarland and the younger brother of Dr. J. J. McFarland, of Lebanon, Tenn.

He was educated in the schools of Lebanon, and graduated in medicine April, 1901, from the University of Nashville, Medical Department, at the age of 21 years.

He seemed especially adapted to surgery, and had spent much time in doing postgraduate work in surgery in New York, Chicago and other surgical centers, and at the time of his death was doing a very large practice in both medicine and surgery, especially major operations and abdominal surgery. He had built, equipped and owned a splendid hospital which did credit to a town the size of Lebanon.

He was a member and one of the most regular attendants of the Wilson County Medical Society. He had served the Society both as president and as secretary. He was also a member of the Tennessee State Medical Association and of the American Medical Association.

Dr. S. W. McFarland was an ethical physician and surgeon, a Christian gentleman, and a citizen of noble character, with sterling worth and ability.

He is survived by his wife and one child, Allison, a boy of seven years, and many relatives and a host of friends to mourn his loss by this untimely death.

By his lifelong friend, classmate and associate,
WALTER S. DOTSON, M. D.

MISCELLANEOUS

A LEAF TORN FROM A PHYSICIAN'S DIARY.

When he walked into my office his appearance, dress and carriage sought my confidence and gained my esteem. His tale was soon told. Because of financial ambition unsatisfied and wonderful hopes not yet realized, his marriage to a lovely girl had but recently been consummated. Due to family relations, life-long association and church social activities, they had been constantly in each other's company, and the old story of loving not wisely but too well was re-enacted. I was appealed to as an obstetrician of some reputation to take care of the approaching event, now but a few weeks distant. Arrangements were perfected for her care during her stay with me, even before the papers ceased to copy the account of the elaborate wedding, flower girls and all.

It was but a few days later when a stylish and handsome woman introduced herself as the patient-to-be, but requested the privilege of a few days' visit with some friends who were anxious to pay her some attention, she having come from a distant city, and being anxious to enjoy a look at our surroundings. The second day she arrived at the hospital, and in two hours I was called by the nurse and informed that she was in labor. In but a few hours, and devoid of accident or injury, she gave birth to a handsome boy baby. All went well until the third day. I was called to hurry to the hospital. The baby was dead. The nurse had placed an electric pad under the baby and turned on the current to keep it warm and cozy. The result is better imagined—the child was literally cooked!

How horrible! How to tell the parents? When at last the fact of its sudden death was imparted there was but one glistening tear, and then the thought of relief. There had been no arrangements made as to its future. It could not have gone home with father and mother. Its death was taken as a cure for all the embarrassment. In due course of time the mother returned to her

home and his since reared around her an interesting family, the facts herein being only known to the doctor in their proper sequence. Verily, truth is stranger than fiction!

Was the child's death providential? The quiet ending is to be contrasted with the attempting to hide or renounce a living baby, or the lawsuits and publicity which would have resulted to the hospital if such an awful accident had happened to a baby under normal conditions. W.

POLYVALENT VACCINES FOR COLDS.

At least five commercial manufacturers of biologic products make and push the sale of vaccines to prevent colds. Of these at least two, from time to time, have added new strains of bacteria to the formulae with which they originally introduced their products, so that seventy-five or eighty different types of bacteria are now included. Every year different types, varieties and species of bacteria have been associated with colds in different parts of the country. Presuming—although it has never been proved—that any vaccine has value in preventing colds, the logical thing to do is to prepare a specific vaccine for each form of cold in each part of the country. Commercially it is much more profitable to mix all the bacteria together, to prepare a vaccine and to inject this into the patient in the hope that some organism will produce antigens which will find their mates. The present-day shotgun biologic mixture is more ridiculous than the old shotgun proprietary—and a greater menace to public health and to scientific medicine.—*Journal A. M. A.*, January 15, 1921, p. 182.

BOOK REVIEWS.

HYGIENE OF COMMUNICABLE DISEASES. By Francis M. Munson, M. D., Lieutenant, Medical Corps, U. S. N., Retired; Lecturer on Hygiene and Instructor in Military Surgery, School of Medicine, Georgetown University. Paul B. Hoeber, Publisher, New York. \$5.50.

This is "a handbook for sanitarians, medical officers of the Army and Navy, and general practitioners," which appears to be a very

good work. It seems that the author, by reason of his experience as a military medical officer, has presented his matter in a manner that will make it especially helpful to the sanitarian who is engaged in military service; however, what is good for a group of soldiers or sailors is also good for a group of civilians, because the principles of sanitation are the same everywhere. There are some features included in this book that we have not seen presented in any work on a similar subject. The arrangement of the subject matter is most excellent, since it is such as to enable the reader to secure easily and quickly information that is desired on any particular point. This is of great value to one who needs authoritative guidance upon a point that must be definitely settled for immediate purposes. It is too often required of him who searches a text for information which is needed at once that he shall turn from page to page, and back again, to gather together a few facts bearing upon one specific matter. It is indeed remarkable that so much real information has been put into so few pages as is to be found in this handbook, which is entirely worthy of a place in the working library of any physician.

THE MEDICAL ASPECTS OF MUSTARD GAS POISONING. By Alfred Scott Warthin, Ph. D., M. D., Professor of Pathology and Director of the Pathological Laboratories of the University of Michigan, and Carl Vernon Wellers, M. S., M. D., Assistant Professor of Pathology, University of Michigan. Cloth; pp. 267, with 156 original illustrations. St. Louis; C. V. Mosby Company. 1919.

This work is a compilation of the war studies of its two authors, and which have been already published in a series of six papers in the *Journal of Clinical and Laboratory Medicine*. In this volume these papers are conveniently united in a manner whereby their usefulness would be greatest to those interested in this somewhat unusual topic. The book is profusely illustrated with photographs, microphotographs and detailed protocols of laboratory and clinical data; it likewise contains a very full and apparently complete bibliography which is conveniently indexed.

R. C. D.

THE JOURNAL

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PROGRAM OF THE EIGHTY-EIGHTH ANNUAL MEETING OF THE TENNESSEE STATE MEDICAL ASSOCIATION AT NASHVILLE, APRIL 12-14, 1921.

GENERAL SESSIONS.

Address by the President, L. L. Sheddan, M. D., Knoxville.

"The Preoperative and Postoperative Management of Abdominal Operations," by Eugene J. Johnson, M. D., Memphis. To open discussion: V. D. Hollaway, M. D., Knoxville.

"Gastroduodenal Ulcer," by J. T. Moore, M. D., Algood. To open discussion: C. P. Fox, M. D., Greeneville.

"Cock-Sureness in the Practice of Medicine," by I. A. McSwain, M. D., Paris. To open discussion: Frank A. Jones, M. D., Memphis.

"Conservation of the Menstrual Function," by John B. Haskins, M. D., Chattanooga. To open discussion: J. M. Clack, M. D., Rockwood.

"X-Ray Diagnosis of Gallstones and Gall Bladder Disease," by W. O. Floyd, M. D., Nashville. To open discussion: W. S. Lawrence, M. D., Memphis.

"Version Vs. High Forceps," by W. T. Pride, M. D., Memphis. To open discussion: W. J. Breeding, M. D., Sparta.

"Encephalitis Lethargica—With Case Report," by S. A. Henderson, M. D., and Hermon Hawkins, M. D., Jackson. To open discussion: W. H. Witt, M. D., Nashville.

"Encephalitis Lethargica," by Carroll C. Turner, M. D., Memphis. To open discussion: E. R. Zemp, M. D., Knoxville.

"Surgical Aspect of Congenital Pyloric Stenosis," by W. T. Black, M. D., Memphis. To open discussion: J. S. B. Woolford, M. D., Chattanooga.

"Report of a Case of Extraperitoneal Pyosalpinx, with Operative Technique Used in the Case," by Percy H. Wood, M. D., Memphis. To open discussion: W. C. Dixon, M. D., Nashville.

SYMPOSIUM ON SYPHILIS.

"Principles in the Clinical Recognition of Syphilis and the Syphilitic," by John A. Witherspoon, M. D., Nashville.

"The Initial Lesion and Its Differential Diagnosis," by Tom R. Barry, M. D., Knoxville.

"The Early and Late Skin and Mucous Membrane Reactions," by Marcus Haase, M. D., Memphis.

"Reactions in the Newborn and the Growing Child," by Edward Clay Mitchell, M. D., Memphis.

"The Laboratory Diagnosis," by R. C. Derivaux, M. D., Nashville.

"Trachoma and Folliculosis," by E. C. Ellett, M. D., Memphis. To open discussion: Eugene Orr, M. D., Nashville.

"Vertigo," by J. J. Shea, M. D., Memphis.

"Is the Baranay Test of Any Diagnostic Help to Us?" R. C. Bunting, M. D., Memphis. To open discussion: Louis Levy, M. D., Memphis, and E. C. Ellett, M. D., Memphis.

"Ulcer of the Stomach and Duodenum" (lantern slide illustrations), by W. D. Haggard, M. D., Nashville. To open discussion: J. M. Maury, M. D., Memphis.

"Goitre," by J. A. Crisler, M. D., Memphis. To open discussion: H. M. Cass, M. D., Johnson City.

"Early Diagnosis and Surgical Treatment of Hyperthyroidism," by E. H. Adkins, M. D., Chattanooga. To open discussion: T. G. Pollard, M. D., Nashville.

"The Perineum," by R. A. Barr, M. D.,

Nashville. To open discussion: A. G. Kern, M. D. Knoxville.

"Diagnosis of Gall Bladder Diseases," by Otis S. Warr, M. D., Memphis. To open discussion: Geo. C. Williamson, M. D., Columbia.

"What to Do With the Gall Bladder?" by Geo. R. West, M. D., Chattanooga. To open discussion: Jere L. Crook, M. D., Jackson.

"Essential Hematuria," by Perry Bromberg, M. D., Nashville. To open discussion: H. P. Larimore, M. D., Chattanooga.

"Traumatic Brain Lesions," by E. Dunbar Newell, M. D., Chattanooga. To open discussion: W. G. Somerville, M. D., Memphis.

"Acute Suppurative Osteomyelitis," by H. L. Fancher, M. D., Chattanooga. To open discussion: W. A. Bryan, M. D., Nashville.

"Auscultation of the Heart and Its Sounds," by W. S. Woodyard, M. D., Greenville. To open discussion: Larkin Smith, M. D., Nashville.

"Ureteral Calculi," by Geo. R. Livermore, M. D., Memphis. To open discussion: E. T. Newell, M. D., Chattanooga.

"Visceral Ptosis," with Special Reference to Mobile Ascending Colon," by R. L. Motley, M. D., Dyersburg. To open discussion: Jesse J. Cullings, M. D., Memphis.

"Diagnosis of the Disease of the Kidney and Ureter," by W. H. Cheney, M. D., Chattanooga. To open discussion: H. S. Shoulders, M. D., Nashville.

"Pyelitis Simulating Other Abdominal Lesions," by C. T. Speck, M. D., Cleveland. To open discussion: J. W. Brandau, M. D., Clarksville.

"Radon," by Shields Abernathy, M. D., Memphis. To open discussion: J. P. Tillery, M. D., Knoxville.

"The Value of Occupational Therapy in State Hospitals," by E. W. Coeke, M. D., Bolivar. To open discussion: Jesse C. Hill, M. D., Bearden.

"Diverticulitis of the Sigmoid," by D. R. Pickens, M. D., Nashville. To open discussion: R. L. Sanders, M. D., Memphis.

"The Treatment of Neuralgia of the Fifth Nerve by Injection of the Gasserian Ganglion," by Duncan Eve, Jr., M. D., Nashville.

To open discussion: A. W. Harris, M. D., Nashville.

"Immunity and Its Consecutive Stages of Development," by Geo. J. Sells, M. D., Johnson City. To open discussion: J. S. Fleming, M. D., Memphis.

"Quartz Light Therapy," by S. S. Marchbanks, M. D., Chattanooga. To open discussion: J. Howard King, M. D., Nashville.

"The Treatment of Gonorrhoea in Women," by I. G. Duncan, M. D., Memphis. To open discussion: C. F. Anderson, M. D., Nashville.

"Borderline Psychoses," by L. E. Ragsdale, M. D., Columbia. To open discussion: J. W. McQuillian, M. D., Chattanooga.

"The Modern Surgical Operation," by C. N. Cowden, M. D., Nashville. To open discussion: Frank D. Smythe, M. D., Memphis.

"Lacerations of the Cervix," by L. E. Burch, M. D., Nashville. To open discussion: E. H. Baird, M. D., Dyersburg.

"Septic Infection of the Urinary Passages in Children," by R. H. Perry, M. D., Nashville. To open discussion: Oliver W. Hill, M. D., Knoxville.

"Prostration: From a General Practitioner's Standpoint," by H. C. Guerin, M. D., Dickson. To open discussion: J. J. Waller, M. D., Oliver Springs.

"Case Reports," by Jno. Overton, M. D., Nashville. To open discussion: R. H. Faucett, M. D., Columbia.

"Eczema and Its Management," by J. M. King, M. D., Nashville. To open discussion: R. G. Henderson, M. D., Memphis.

"The Use of Mercuric and Potassium Iodide, Intravenously, in the Treatment of Syphilis," by G. Madison Roberts, M. D., Chattanooga. To open discussion: Jno. E. Hall, M. D., Nashville.

"Blood Transfusion: Its Therapeutic Uses," by H. Quigg Fletcher, M. D., Chattanooga. To open discussion: Bryce Runyon, M. D., Clarksville.

"Some Observations on Gall Bladder Surgery," by C. P. Fox, M. D., Greenville. To open discussion: Robert Mann, M. D., Memphis.

"Luminal in the Treatment of Epilepsy. With Report of Cases," by Jesse C. Hill, M.

D., Bearden. To open discussion: Jno. W. Stevens, M. D., Nashville.

"Psychosis and Age, With Review of 1,200 Recent Admissions to the Central State Hospital," by W. Scott Farmer, M. D., Nashville. To open discussion: L. E. Ragsdale, M. D., Columbia.

Paper, by Battle Malone, M. D., Memphis. To open discussion:

Paper, by Wm. Krauss, M. D., Memphis. To open discussion:

Paper by A. L. Rule, M. D., Knoxville. To open discussion:

Paper, by Henry Douglass, M. D., Nashville. To open discussion:

Paper by Irving Simons, M. D., Nashville. To open discussion:

Paper by R. E. L. Smith, M. D., Bearden. To open discussion:

"The Prognosis in Nephritis," by Jack Witherspoon, M. D., Nashville. To open discussion: G. E. Campbell, M. D., Elizabethton.

"Surgical Indigestion," by Robert Mann, M. D., Memphis. To open discussion: W. M. McCabe, M. D., Nashville.

"Pythorax," by Casa Collier, M. D., Memphis.

"Organic and Functional Heart Murmurs," by W. A. Oughterson, M. D., Nashville. To open discussion: C. J. Carmichael, M. D., Knoxville.

"Report of Some Unusual Obstetrical Complications Necessitating Operative Interference—Ruptured Uterus—Twisted Ovarian Pedicle—Dermoid Cyst Blocking Pelvic Outlet," by Edward T. Newell, M. D., Chattanooga. To open discussion: Percy W. Toombs, M. D., Memphis. To open discussion: J. F. Gallagher, M. D., Nashville.

"Passing Away—Fading Out," by W. K. Sheddan, M. D., Columbia. To open discussion: J. B. McElroy, M. D., Memphis.

"Classification of Streptococci," by Lloyd Arnold, M. D., Nashville. To open discussion: S. H. Barrett, M. D., Chattanooga.

"Suggestions in the Care of Operative Patients," by V. D. Holloway, M. D., Knoxville. To open discussion: H. M. Tigert, M. D., Nashville.

CONGENITAL PYLORIC STENOSIS.

By R. A. Barr, M. D.,
Nashville.

I am not one of those who take special interest in rare conditions, diseases that one will only see once, if at all, in a lifetime of practice, and particularly those diseases in which one can take only a curious or so-called scientific interest because of their incurability.

There are conditions however, more or less curable, which though relatively rare, show up at intervals in any doctor's practice and which stand a good chance to be overlooked temporarily or entirely unless they are kept in mind and looked for in every case with suggestive symptoms. In these conditions delay in recognition is often dangerous, even fatal, in its results, so it behooves us to be continually on the "qui vive" in order to recognize them early, and institute the proper treatment as we see it. Such conditions, even though rare, command a real, not a curious interest.

Two of these relatively rare conditions, surgical in nature, intussusception and congenital pyloric stenosis, occur in infants and are apt to escape early recognition because of the ease with which they may be confused with the ordinary digestive disturbance of babies.

The occurrence of congenital pyloric stenosis is not so unusual as its recognition. I am convinced of this because I have had a number of friends who, in thinking back over a few years of general practice, have been able to recall cases which, in the light of increased interest and information, they have been able to diagnose, post mortem, unfortunately. Either it has been more frequent in its occurrence in our Middle Tennessee section of very recent years, or our doctors are recognizing it more readily. I am inclined to believe that the former is the case, because it has been found more often in the practice of men who have for years been very much interested in the subject and constantly looking out for cases.

According to Douglas, congenital pyloric stenosis was first described as such by Lan-

derer in 1879. Green and Sidbury accredit priority to Hirschsprung in 1888. Holt gives Cordua credit for the first operation (jejunostomy) in 1893, which was not successful. The recent literature on the subject is largely surgical, and the number of reported cases that have been operated on has grown rapidly in the last five years.

The fact that Downes of New York has operated on and verified over 250 cases shows that the condition is not infrequently found when a watch is kept for it. Of course, Downes occupies a very strategic position at the Babies' Hospital, and his work is of exceptional volume, but, as has probably been noticed, Strauss of Chicago brought out in the discussion of Downes' paper, published in the J. A. M. A. of July 24, 1920, that he has treated 163 cases, 107 surgically, while many surgeons have series of twenty or more.

The pathology of the condition is still a matter of discussion. It was originally considered as pyloric spasm with consequent hypertrophy, and this theory is still held to by most. Whether or not spasm cuts a figure in the early stages, there isn't the slightest reasonable ground, in my opinion, for thinking it a matter of importance after the case has gone to a certain stage. The tumor at this stage neither looks nor cuts nor acts like an hypertrophied and spasmodic muscle. It is much more on the connective tissue order, and the margins of an incision through it have no tendency to separate.

This matter of spasm is of some importance, as it would certainly have a bearing on medical treatment. The very complete obstruction which sometimes comes up suddenly in cases that have been able to get a certain amount of food by is no doubt due to oedema of the mucous membrane rather than to spasm of the muscle. Antispasmodics would have slight chance to be of any benefit for this.

Apparently the tumor persists more or less indefinitely (55 months in one case noted by Holt, tumor being seen and felt at operation for hernia) in cases relieved by medicine or by gastro-enterostomy, but Downes reports that the pylorus appeared normal in two cases in which he secured post mortems following death from pneumonia one and one-half years after what he now calls the Fredet-Ramm-

stedt operation, but which we will, for brevity, refer to as the Rammstedt.

Cases of congenital pyloric stenosis develop symptoms in the majority of instances in the first month of life (third week most frequent time), though cases at three, four and a half and five years are reported. It is most frequent in breast-fed males. The symptoms and signs are entirely obstructive, either directly or indirectly. It has no special symptoms, for it is a mechanical condition and it does not cause any changes whatever beyond more or less complete occlusion of the pylorus and a consequent varying degree of starvation.

Vomiting is the first symptom. This is uniformly persistent and forcible, but of varying frequency. Some patients vomit promptly after every feeding, others at longer intervals, possibly only once or twice in twenty-four hours. Gastric retention, scanty bowel movements (meconium only, no food residue in severe cases), diminished secretion of urine, loss of flesh, scaphoid lower abdomen, fullness of upper abdomen, visible gastric peristalsis, palpable epigastric tumor, and x-ray findings are the evidence on which a diagnosis may be easily made. Fever is incidental only. The pulse depends on the patient's general condition. Acidosis may result from starvation.

The necessity and risk of x-ray investigation is variously estimated. Holt thinks it just as conclusive and decidedly safer to estimate the gastric retention. Strauss, who next to Downes, has had largest experience, insists on its value not only for diagnosis but also for deciding for or against surgical treatment. Unless from 70 per cent to 80 per cent of the bismuth meal goes through in four hours he considers the case surgical. X-ray evidence is certainly conclusive and when this agency is used carefully it should be without serious danger. There is no reason for its use as a routine, however. Vomiting, visible peristaltic waves, and palpable tumor make a clear enough combination on the diagnostic end.

The condition of the patient shows the degree of starvation and so is sufficient index to amount of food getting by.

It is probably safe to say that a diagnosis

of congenital pyloric stenosis is readily made in the great majority of instances, and that in any case the condition can hardly be completely missed, except by mere failure to look for it.

Downes lays great stress on finding the tumor, and one infers from his articles that he has always been able to feel it, his only mistakes being in two cases in which he felt a tumor that was not present. He advises emptying the stomach of gas and the use of light ethyl chloride anesthesia as aids to palpation. Other observers do not find the tumor so uniformly before operation. In its absence of course x-ray is essential for definite diagnosis.

Starting with a diagnosis of congenital pyloric stenosis, we come next to the question of treatment. There are, unquestionably, cases which do not require surgery, but, as with acute appendicitis for instance, it is a difficult matter to select them.

It is largely a matter of whether the patient can be nourished or not. While cure of the hypertrophy and disappearance of the tumor is not required for successful medical treatment, any ground lost in trying it out handicaps the surgeon, if he finally has to be called in. Of course the surgeon is anxious that medical care be not pushed to the point of leaving him a devitalized subject to work on.

The feeding of these cases after operation is a problem in itself, and post operative medical treatment is probably the best medical treatment for the great majority of cases. We will take this question up briefly again in discussing mortality.

Assuming that surgery has been agreed upon, there are still some questions to be settled.

First is the question of anesthesia. Shall we use a local anesthetic or ether (chloroform is not to be considered)? Bevan of Chicago and Haggard of Nashville are ardent advocates of local anesthesia. My own experience with it has been unsatisfactory, except in my last case, which will be reported at the end of this paper. Local anesthesia should be tried in every case and can be supplemented by ether when necessary.

It is easy enough to make the incision in

the belly wall under local anesthesia, but a more difficult job, in some cases, is to exert the necessary traction on some viscera and pressure on others, incident to any of the various operative procedures, without causing more shock than would be caused by ether. Local anesthesia is only worth while when we do a painless operation with its help. Just as with adults, it is probably important, if not absolutely necessary, to give a full dose of opiate in connection with local anesthesia.

Another point in connection with local anesthesia is to make a short incision. Unless this precaution is taken any struggling or crying on the part of the patient causes a protrusion of viscera difficult if not impossible to control. Strauss says the Rammstedt operation can be performed through an incision three-fourths to one inch long. As the pyloric tumor will average two inches in circumference this seems hardly possible, for the average surgeon, and a two-inch incision is not excessive. The tumor is located by Strauss with one index finger introduced through this short incision, and then brought out of the wound with a small fine ribbon-shaped hook. Only cases with freely movable pylorus can be handled in this way, and especially under local anesthesia. In some cases, due to fixation of the duodenum, it is necessary to go down to the tumor, as it will not come up to you. Here a general anesthetic is more or less obligatory, as it will probably prove to be in most cases in which gastro-jejunostomy is done.

The Rammstedt operation or some modification of it is now almost universally employed. In this an incision is made in the tumor in the long axis of the gut through the serous and muscular coats down to the submucous layer. No effort is made to close or cover up this open wound, nor does there seem to be any good reason for trying to.

Smythe of Memphis has reported a case in which this procedure failed to relieve the obstruction, and he had to do a gastro-jejunostomy. On the other hand, Holt states that he has had sufficient observation of the Rammstedt operation to know that it does relieve the obstruction at once and completely. Downs from observation of the same cases

says that the results are permanent and the cure complete.

Strauss says that the Rammstedt as done by Downes "does not release the obstruction sufficiently, and for this reason the patient, following an operation, vomits for four or five days." He figures a mortality from this of from 30 to 50 per cent. His modification of the Rammstedt, which consists in peeling the cylinder of mucous membrane free from the muscular coat for some two-thirds or three-fourths of its circumference will, in his opinion, overcome this objection. He further splits the muscular coat to give more room, and to furnish a covering for the mucous membrane.

He claims to have operated on 107 cases by this modification with only three deaths. He knows of another surgeon who has used his method in nineteen cases without a death, and still another who has used it in twenty-three cases with only one death. Strauss further states that twenty-four of his cases were in a "moribund" condition when operated on, and only one of those died.

If there is any merit in the Strauss modification of the Rammstedt operation it consists in the separation of the mucous membrane from the muscle. If this in turn is to be of real value it must be carried well up to if not beyond the duodenal end of the tumor. Here we certainly greatly increase the risk of opening the duodenal mucosa.

Lewisohn (in S. G. and O. Vol. 26, 1918) quotes the combined statistics of Scudder, Stillman and Richter, giving thirty-six gastro-enterostomies with 13 per cent mortality, and rather leans to this procedure instead of the Rammstedt. Out of eight Rammstedts reported by him done at Mt. Sinai hospital, the duodenum was accidentally opened in three and in the hands of three different surgeons. This matter of opening into the duodenum is the greatest technical risk about the Rammstedt.

All the coats of the duodenum are relatively thin and the line of cleavage between the muscular and submucous coats is poorly marked compared to the stomach. The duodenal end of the incision through the tumor must be completed last and with great care. It is well enough to tear rather than cut the

deepest fibres through the whole length of the incision, using the handle of a scalpel, or a small periosteal elevator. No doubt fear of going through the duodenal mucosa has caused surgeons to fail to make division of all circular fibres, and so has caused failure to relieve the obstruction.

The risk of opening the bowel belongs justly to the operation, but failure to divide the fibres does not prove that a properly done Rammstedt will not give prompt and permanent relief of the obstruction. I believe that it will, and I further believe that all modifications of this operation in the way of peeling out the mucosa, trying to make a muscular or peritoneal closure over it, use of oatmeal plug, etc., are meddlesome tinkering.

There is a real danger from hemorrhage in these cases, and all bleeding from both wounds (abdominal and pyloric) should be stopped before the abdominal incision is closed. For this purpose very fine needles and silk thread should be used on the wound of pylorus. Catgut needles and sutures are too bulky for use here and cut or tear. The sutures, with needles attached, put up for blood vessel sutures are about right. These may be passed mattress fashion or the cut edge of tumor may be whipped over.

The tumor as I have seen it is so rigid and so friable that any suggestion to split it for flap formation strikes me as absurd. The tumor is so stiff that the cut edges of the incision have to be forced apart to give access to the deeper layers, and to make provision for careful inspection necessary to avoid opening the mucous membrane.

The mortality of the Rammstedt operation has already been referred to. Downes's general mortality is 17.1 per cent, though he only lost one of fifty-one cases of breast-fed infants coming to operation with a weight loss of 20 per cent. His mortality in all cases coming to operation in less than four weeks from onset of symptoms was 8 per cent.

Other operators claim a general mortality of 3 per cent to 5 per cent. This is too low an estimate unless patients are gotten very early, and have the best and most careful post-operative medical care.

It is useless to compare medical and surgical results, though the comparison favors sur-

gery. The best and the worst cases are not operated on where any selection is made. Surgery is imperative in the majority of cases, and I do not believe that any time or any of the patient's strength should be lost in trying out medical treatment. Unless it is promptly made evident that the patient is able to hold its ground in matters of flesh and strength, surgical measures should be instituted.

No one could in my opinion be considered very radical for advising operation in every case in which definite diagnosis is made. Some cases would be operated on which might get by without it, but the general mortality would be lowered, and that is the real basis for formulating plans of treatment.

The post-operative treatment is a matter of great importance and is of course largely a matter of supplying water and food. The average surgeon has little or no experience in infant feeding, and all these cases should have the best available pediatrician in charge after operation, if not before. With adults we can play things safe and starve the patient until we know he is ready for food. Infants do not stand starvation and the usual plan of post-operative treatment for adults would prove disastrous.

Case Congenital Pyloric Stenosis.

Baby L., age 7 weeks.

Family History.—Mother aged 25 and in fair health. No special family history. Father aged 31 and in good health. No special family history. Parents have been married seven years. Mother has had two children—one boy, 4 years old, and the patient, who was born November 7, 1920. Mother's sister has a child now 9 years old which had congenital pyloric stenosis and got well under medical treatment.

Patient's History.—Patient was born without any special difficulty, but labor was somewhat prolonged. He weighed 8½ pounds at birth. He has not been weighed since. For four weeks patient was apparently all right. He took his nourishment (mother's milk), and seemed to flourish very satisfactorily. Then he began vomiting after each feeding. Then began a gradual loss of flesh. He also became constipated. His bowel movements became less frequent and small in amount, and finally stopped entirely. For last week

have only moved in response to medicine or enema. Only for last day or two has any diminution in amount of urine been noticed. Since he began vomiting he has not retained water very well—in fact, he vomits water almost as promptly as food. He has not cried or fretted a great deal, and has slept all night for most nights. For last two nights seems to have slept particularly well.

Physical Examination.—Patient's general appearance shows emaciation, but not to any desperate degree. He probably weighs seven pounds. Heart action strong and regular. Chest clear. Upper abdomen distended and showing distinct "cat backs" at regular intervals, moving from left to right. Lower abdomen flat; no visible contractions. Patient is given water through a nipple, and while he is busy with this a tumor can be felt to right of and above umbilicus. The tumor is flat, somewhat bifid internally, and feels about the size of a chestnut.

Diagnosis.—Congenital pyloric stenosis.

Operation.—Morphia gr. 1-120 given hypodermically half hour before taking patient to operating room.

Gastric lavage after patient is placed on operating table. Some milk is washed out of stomach. Violent efforts at vomiting with tube in stomach.

Local anesthesia: Cocaine, 1-10 of 1 per cent in suprarenalin solution.

Right rectus incision, short incision in peritoneum. Falciform ligament of liver somewhat in the way. Baby cries some and some tendency to protrusion of transverse colon and small intestine. More or less delay from this in effort to get baby quiet. Stomach is brought up with forceps and tumor delivered. Typical tumor, rather softer than those I have seen before. Rammstedt incision. Muscle wound separated rather more easily than usual. Constriction as with connective tissue band at duodenal end of tumor not so distinct as in other cases seen. Small linen suture to control bleeding from duodenal end of lower side of wound.

Belly wall closed with layer catgut.

Convalescent Period.—Patient did not vomit after operation and made steady progress. Dismissed from hospital on sixth day, with wound healing apparently perfectly, and with general appearance much improved.

BLOOD TRANSFUSION.

With Reference to Thirty-nine Recent Cases
by the Citrate Method.

By C. R. Crutchfield, M. D.,
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The great world war has forcibly demonstrated the value of blood transfusion in medicine and surgery as a means of prolonging and saving life. This, together with previous numerous reports of brilliant successes by a number of different investigators, has rightly awakened the interest of the whole profession in the efficiency of blood transfusion. This has been made possible by the development of simplified methods of transferring the blood; by the elimination of dreaded dangers which once attended its use, and by the increasing appreciation of the therapeutic value and use of blood transfusion.

The development of the simplified methods of transferring blood was a slow process and its history is an interesting record of alternate triumphs and failures. In 1667, following the publication of William Harvey's celebrated treatise on the motion of the heart and blood, the first successful transfusion was done on man by Jean Denys of France. The new procedure was warmly received by the profession and immediately put into practice. Transfusions were done from man to man and animal to man, deaths resulted and it was condemned by the Supreme Court of France. The practice was forsaken for a century. In the next century, the nineteenth century, it was revived and numerous ingenious methods for the direct transference of blood were devised with more or less success. Blasius in 1863 collected 116 cases, of which 56 were successful. Due to the increased interest in the possibilities of transfusion, the work continued, but was handicapped by rather complicated apparatus and a limited knowledge of aseptic technique. From 1897 to 1899 rapid strides were made in the study of blood vessel surgery by Murphy, Carrel, Guthrie, Matas and Crile. The direct suture of artery to vein and vein to vein was followed by the use of the can-

nula, paraffin-coated glass tubes, etc. The success of blood transfusion by this method was assured, but it required a surgeon skilled in blood vessel surgery to perform the operation.

Curtis and David, to overcome the difficulty of the direct method, devised a paraffin-coated receptacle to collect the blood and then to reinject. This method was later modified by Kimpton and Brown, Percy, Satterlee and Hooker. This resulted in the indirect method of transfusion, which is ideal under certain circumstances. The one essential objection lies in the difficulty of coating the tubes and connections with a uniform layer of paraffin. Any error in this means failure. This operation requires especially trained assistants, at least two or three, the blood has to be transferred in less than eight minutes or it clots, and like the Crile cannula method, a vein is destroyed in each operation in both the donor and the recipient.

In 1913 Lindeman published a simple syringe method of transfusion which did not necessitate cutting down on or dissecting out the vessels of the donor and recipient. Other advantages of this method were that it could be carried out rapidly and the amount of blood used could be accurately measured. Dexterity and speed are necessary even with the aid of skilled assistants. By utilization of the principle of the two-way stopcock, modifications of this method were devised by Freund, Unger, Kush and Miller, thus combining the direct and indirect methods. "Except in the hands of those skilled in the application of a special technique and under the most favorable circumstances none of the syringes or syringe modification methods are ideal for transfusion. Excluding the paraffin-coated receptacle the successful application of all others was dependent upon the rapid transference of blood from the donor to the recipient, in less than the normal coagulation time of blood." In 1914 Hartwell wrote: "The attainment of the ideal seems to lie in the development of a method by which coagulation and other alterations of the blood are prevented during the time required to draw sufficient blood (1000 c. c.) into a receptacle connected by a subcutaneous venous

puncture into the recipient—these two principles, if desirable, being in separate rooms.”

Various means were employed to obtain this ideal by dilution of the blood with normal saline, by iso-tonic glucose and by the addition of various chemicals, most popular of which are herudin and sodium citrate. Both have proved successful. Herudin, however, under certain conditions develops toxic properties which should exclude it for transfusion purposes. Hustin in 1914 and 1915, together with Agote, Weil, Lewisohn, Reuch and others working independently, published articles regarding experiments and clinical applications of transfusion using sodium citrate. Hustin in 1914 reported transfusion in human beings in which blood was kept fluid by means of a 2 per cent sodium citrate containing glucose before injection. Prof. L. Agote, of Buenos Ayres, first used sodium citrate alone in blood transfusions in man. Lewisohn shortly after this, determining the exact dosage of sodium citrate which could be used with safety, describing the use of a .2 per cent solution sodium citrate for this purpose. From his work there has developed a method which is practically ideal, combining four advantages of extreme importance—facility, efficiency and security—therefore, attaining Hartwell's ideal of a method of blood transfusion.

The technique of Lewisohn is quite simple. He divides his description into two parts: (1) Obtaining the blood from the donor; (2) infusion of blood into the recipient. Garbats has given us the present-day modifications of his method. We have used with satisfactory results the modification as described by Pemberton.

1. Obtaining the blood from the donor.—The arm of the donor is prepared in the usual way. A tourniquet of small rubber tubing is lightly applied to the donor's arm, and one of the larger veins in the elbow region, usually the median cephalic, is transfixated in its upper segment to the skin by a straight intestinal needle as described by Watson. A Kaliski cannula needle (No. 11) is introduced under the intestinal needle into the vein against the flow of blood. The vein is steadied and prevented from rolling from under

the needle by exerting slight traction upon the transfixated needle. The blood is allowed to flow out rapidly through the needle connected with a short rubber tube and is collected in a graduated glass container which has at its bottom the 2 per cent sodium citrate solution. If we want to give 500 c. c. of blood, we add 60 c. c. of this solution, thus effecting a two per thousand mixture with a little excess of sodium citrate. The blood is stirred constantly with a glass rod while passing into the sodium citrate solution to prevent clotting and to facilitate thorough mixing. Smaller and larger amounts of blood are treated proportionately. It is important to take care that in mixing blood and citrate the proportion is never less than two per thousand. In order to prevent such an occurrence it is advisable to have a few c. c. of surplus sodium citrate which can be done with perfect safety. Twice we have had slight clotting of blood, due to insufficient sodium citrate. This was filtered through gauze saturated with sodium citrate solution and given as usual, with no ill effects.

2. Infusion of the blood into the recipient.—If the recipient is very anemic or very weak we will have to expose the vein by a small incision. The cannula is inserted and the latter is attached to a salvasan apparatus which contains from 20 to 30 c. c. physiologic sodium chloride solution. The blood is then poured into this apparatus and allowed to run into the punctured vein by gravity, exactly like an ordinary saline solution.

There are many modifications of this technique, of which Pemberton's is very satisfactory. Various methods of using bottles specially prepared to collect the blood have been devised. But the simplified technique of Lewisohn or Pemberton is quite satisfactory.

Again, there is very low mortality in all types of transfusions when the proper precautions are taken. 1,766 cases collected show a total mortality of four-tenths of one per cent. In Pemberton's series each case of hemolysis was found to be traceable to some fault in the technic of blood tests. In our forty-nine cases we have had no hemolysis or death as a result of transfusion.

In the last three years of my association with Dr. W. D. Haggard we have had forty-nine transfusions. We formerly used the paraffin-coated Brown-Kimpton tube, but since 1917 we have been using the sodium citrate method. Prior to that time all of the other methods were tried out in this clinic. The citrate method has so many advantages in its favor that after careful comparison it is the present method of election in many larger clinics of this country as well as with the American Expeditionary Forces. One of the great advantages of this method is that it does not require the donor and recipient to be in the same room. This lessens the psychic shock of the whole procedure for the patient. It does away with the usual operating room technique. In fact, the donor's blood may be collected in the laboratory or office and carried to the patient's bedside. Another great advantage of this method is that there is no connection between the donor and the recipient, the donor is safe-guarded against contagion of any disease or any infection which the patient may have. Then again the whole procedure can be performed with the greatest ease and without any hurry because the citrated blood can be kept two or three days, or longer if necessary, in a glass jar without danger of clotting. While it is true that the citrated blood will remain unclotted for forty-eight hours or more, there is some doubt as to the advisability of using it for transfusion purposes after it has been outside of the body any great length of time. We have used it after a three-hour interval and would not hesitate to use it longer if necessary, but as donors are readily accessible, there is no reason for keeping blood in bulk. When a donor lives at a distance from the hospital it is safer to take the donor to the hospital, but it can be collected and carried in a sterile sealed flask to the recipient's bedside.

As far as can be determined, there is little difference between the therapeutic action of whole blood and citrate blood, although there should be a vast difference from a purely theoretical viewpoint. Since sodium citrate definitely inhibits coagulation outside the body it would certainly seem that its in-

travenous injection should raise the coagulation of blood. The reverse however, happens to be true. Numerous investigators and clinical observations have proven that all forms of bleeding in which it is used are attended with the same happy result as in that of whole, untreated blood. For example, a 500 c. c. transfusion in one of our cases caused an immediate and permanent cessation of a chronic profuse bleeding from a duodenal ulcer.

Another objection which is frequently raised to the citrate method is its more frequent reaction. According to observation in the direct method, there is about 10 per cent reaction in all cases. By the indirect method, Unger by the syringe method reported 165 cases in which he had elevation in temperature in 10 per cent and a chill in 3 per cent. In Pemberton's 1,001 cases, there was reaction in about 21 per cent. In our cases we had temperature of 100 in 20 per cent of cases, but a chill in only one in eight. These reactions manifested by chill and fever are much more frequent than when whole blood is used even when the bloods match perfectly by every known test. These reactions vary from a slight rigor to a chill followed by high fever, temperature 103 to 105, in which the patient may become delirious. This is most distressing to the patient and is unfortunate, but it is of no consequence so far as the ultimate result is concerned, since it is unaccompanied by any blood destruction, such as would be manifested by a microscopic hemoglobinuria. There is a decided disproportion of reaction in pernicious anemia and advanced malignancy. Drinker and Buttingham concluded from their investigations that the reactions were independent of the sodium citrate but were due to some alteration in the platelets during transfusion.

The more serious reaction, the occurrence of hemolysis resulting from the employment of incompatible blood, was often described in clinical reports by the older writers, but the phenomenon of iso-agglutination and iso-hemolysis was not understood up until recent years. It has been demonstrated that there exist in the plasma of animals certain bodies which will agglutinate or agglutinate and

hemolyse the red blood cells of other individuals who are members of the same series. This was confirmed by Moss, who made the important observation that hemolysis never occurs without their previous agglutination. These tests for group determination were simplified by Brem, Sanford and others. Moss found that approximately 10 per cent of all fall in Group 1, 40 per cent in Group 2, 7 per cent in Group 3, and 43 per cent in Group 4. Knowledge of these groups has proven of practical value in blood transfusion. Hemolysis does not take place between individuals belonging to the same group and practically never takes place between certain definite combinations of different groups. Once established, these groups do not change. It has been found in hemorrhage of the newborn, when it is necessary to transfuse to check hemorrhage, that the mother is always a suitable donor. However, after the first few weeks the child develops an independent group of its own, not necessarily the same as that of its mother, and its blood should be tested preliminary to transfusion.

In some instances in which the agglutination is questionable the donor should not be used. Except in cases where the risk of delay is greater than the delay of the hemolysis the compatibility of the blood of the donor and the recipient should be determined before each and every transfusion.

In one case of acute shock from hemorrhage the urgency of the case demanded that an immediate transfusion be given without proper grouping; 25 c. c. of blood was allowed to run in. There were none of the danger signals of hemolysis—coughing, dyspnea, severe pains in chest and sacral region, etc. After a half hour there was no reaction and the transfusion was completed without any difficulty. With the appearance of dyspnea, pain in chest or sacral region, nausea or weakness, the operation would have been terminated and another donor secured. With the first appearance of the symptoms of hemolysis, if the transfusion is stopped, only temporary inconvenience to the patient results, but if the transfusion is continued in spite of these danger signals, the patient will have a very severe reaction, become delirious, jaundiced,

have hemoglobinuria and may probably die. Hemolysis fortunately occurs in less than 10 per cent of the cases of transfusion with preliminary tests.

When feasible it is always best to have the donor in the same group as the recipient. However, this is not entirely necessary. In emergencies, where a volunteer donor or relative is obtained whose blood is not in the same group as the recipient, the only practical consideration is that the recipient's serum does not agglutinate the red cells of the donor. In Group 4, the red cells are not agglutinated by the serum of any other group and is commonly known as the universal donor. And since the serum of Group 1 agglutinates the cells of no other group, Group 1 is a universal recipient. Recipients of other groups can take donors of their own group or Group 4 only. We have in and around St. Thomas Hospital a large number of prospective suitable donors in each of the four groups. As soon as we determine the grouping of the patient, we can summon a suitable donor by telephone day or night, and the transfusion is performed as soon as necessary. In emergency surgery, where time does not permit agglutination test of the recipient, a prospective donor in Group 4 can be summoned, for we have absolute confidence that this blood will be compatible. In our work we test the blood of the prospective donor according to Moss agglutination test as modified by Brem, and have the donor and recipient in the same group if possible. To give a double check when time permits the bloods are matched. The serum of the donor is tested against the cells of the donor, and vice versa. With careful preliminary test, the severe reaction of hemolysis can be avoided. We attribute our lack of serious reactions to these careful preliminary tests.

The blood grouping and matching are simple and accurate and can be mastered by anyone with a little practice. With the known sera of Group 2 and Group 3, obtained from the Army Medical School, this test can be made at the patient's bedside in fifteen to twenty minutes.

It has been demonstrated that knowledge of these groups may be of value other than in

transfusion. In skin grafting it has been shown by Schawan and Masson that heterogeneous grafts from individuals belonging to compatible groups the results are very satisfactory. Possibly it may be useful where it is necessary to use a heterogeneous bone graft. It has been even suggested that some of the cases of idiopathic sterility in the female may be due to the incompatible blood, hence incompatible tissues, but this is rather far afield.

The donors are selected from strong, healthy young adults in which malaria and malarial infections have been ruled out by careful history, physical and blood examinations. The amount of blood given to the patient depends upon the age, amount of blood lost through hemorrhage and the general physical conditions present, as well as the pathological process for which the transfusion is indicated. Unless to replace a large bulk of blood lost from acute hemorrhage, it is usually better to use a relatively small quantity of blood, 500 c. c. to 750 c. c., repeating it from five to seven days, rather than from a single transfusion of a large amount. Ashby, by an ingenious method, has determined the life of the transfused corpuscle to be thirty days or more. Evidently in the anemia cases there is a stimulating effect on the blood-forming organs, as is evidenced by the secondary rise in the hemoglobin and blood picture which occur four or five days after the transfusion (Huck). If a large quantity of blood, say 1,000 to 1,500 c. c., is desired for a single transfusion it is usually better to select two or three donors from the same group as the patient rather than take a single large amount from any individual donor. Results from the patient's standpoint are the same, while the donors are not at all weakened or inconvenienced by losing the relatively small amounts of blood.

All the dangers of blood transfusion—acute dilation of the heart, embolism from the introduction of air, or blood clotting and hemolysis—can be avoided if the proper precautions are used. The first two are absolutely preventable with the exercise of due precautions as to the rapidity of the flow of blood and limiting the amount of blood in certain car-

dial and respiratory conditions. The third danger, due to the incompatibility of blood, can be avoided by accurate blood tests.

In our forty-nine cases of transfusion, ten of these were done using the Brown-Kimpton paraffin-coated tube, and thirty-nine were done by the citrate method as modified by Pemberton.

Indications.—"If a blood transfusion is looked upon as a homologous transplantation of living tissue as suggested by Hartwell, it is indicated whenever it is necessary to restore the lost and impaired body tissue. Definite results of transfusions are: The restoring of the bulk of the circulating fluid, providing oxygen and assimilable pabulum for tissues, increase of the coagulability, stimulation of the hematopoietic organs and to increase the resistance to infection of its antitoxic and bactericidal properties." The direct indications for blood transfusion are many, and its employment as a therapeutic measure is a matter of clinical judgment and experience.

The best results of blood transfusion are obtained in cases in which there has been an actual loss of blood. By promptly substituting transfused blood from a suitable donor the patient will have practically as good a chance of recovery as if he had not lost any blood. Shafer, in 182 cases of wound hemorrhage, found that indicated with a systolic blood pressure below 85 associated with a red blood count below 4,000,000 within four hours after the injury without the positive evidence of the loss of any great amount of blood. He also found it to be indicated in those cases where there is a positive evidence of loss of moderate or great amount of blood associated with a condition of shock, irrespective of the blood count or blood pressure. Numerous other reports from the last war zone testify to its supreme value. Dr. R. Rique, of Bordeaux, France, in reporting thirty-six severely wounded associated with shock from hemorrhage, had twenty-two recoveries in apparently hopeless cases. If satisfactory treatment, rest, morphine, heat, fluids, gum arabic solution have failed to raise the blood pressure and maintain it, a blood transfusion is demanded in these cases

from shock from hemorrhages. Pressure below 70 causes the alkaline reserve to be lowered and a condition of "acidosis" develops. Continuance of blood pressure below the critical level (systolic pressure below 80 m. m. mercury) results in damage to the control of circulation, particularly to the nervous factors. The longer the duration of low pressure and the lower the pressure, the greater the damage. It may be so great that no treatment will permanently raise the blood pressure—circulatory control will then have been lost, and any form of treatment will be of no avail. In two of our cases of severe secondary anemia from acute hemorrhage the blood pressure was known to be below 70 degrees for more than four hours. Transfusion was of no benefit to either and both died of acidosis. Both of these cases, if seen and transfused early, would probably have been saved. Blood transfusion has proven to be the best means of raising and maintaining blood pressure, and is the ideal treatment of shock following acute hemorrhage.

Four transfusions were done in four cases for actual hemorrhage.

(a) One was that of a boy twelve years old with post typhoid intestinal hemorrhage resistant to all ordinary measures, rest, morphia, calcium lactate, and horse serum. This bleeding continued until hemoglobin was 35, and he was so weak and anemic he looked as if he would surely die unless aid was forthcoming. One transfusion stopped hemorrhage immediately and permanently, and he was able to leave the hospital in a week's time.

(b) We have had no experience with transfusion in case of blood loss from severe wounds requiring transfusion except cases of post-operative hemorrhage. One case of severe shock from hemorrhage following a kidney operation, pyonephrosis with stones and drainage, had a blood pressure of 70 two hours following operation, which was not raised by ordinary measures. He was pale, had a small, rapid, irregular pulse. Hemorrhage from the wound was stopped by injection of adrenalin through drainage tube, but this condition steadily became worse. He looked as if he would surely die. A conva-

lescent patient was found to have compatible blood; 750 c. c. citrated blood were given, patient improved rapidly, and made an uneventful convalescence. When in doubt transfuse. In this type of cases, errors of omission may cost a life, but errors of commission can cause but a slight transient discomfort.

(c) Another case was that of a woman, 42 years of age, who gradually went into shock six hours after a supra-vaginal hysterectomy for fibroid. Pulse 120 and good volume. One hour later pulse 140, blood pressure 65, and restless and complaining of great thirst. Abdomen negative except for slight dullness in flanks. One hour later, in spite of morphia saline hypodermoclysis and proctoclysis and external heat, the pulse was 140, weak and irregular, systolic blood pressure 60 m. m. mercury, and there was increased dullness in flanks. She was transfused immediately with 750 c. c. of citrated blood. She became pink, pulse 120 and blood pressure 105. Then under gas anesthesia the abdomen was opened and found full of blood from a bleeding point of a needle puncture in the right broad ligament. The bleeding was quickly controlled and patient made an uneventful convalescence. Without a transfusion and reoperation the patient would not have survived.

Wound shock without hemorrhage has not given the results expected from transfusion, and its benefits are not so marked as in cases of hemorrhage. Shafer reports sixty cases with rather disappointing results. We transfused two cases of shock without improvement. One, later on at post mortem, proved to be a case of unrecognized central pneumonia. It would be better in these cases to use 7 per cent gum arabic solution in physiological salt solution, as was advocated by Bayless, with the addition of 4 per cent sodium bicarbonate as suggested by Cannon.

Transfusion given preliminary to an operation, during an operation, will often so improve the patient's condition that a surgeon is justified in risking an operation to save this patient's life. The results of transfusion on the aged, weak, jaundiced, starved or anemic patient as a supportive measure preliminary to operation are evidently gratifying, as is evidenced both by the increasing

ability to withstand the operation and by the rapid post operation convalescence.

(a) One case was that of a woman 44 years old, who had bled from her uterine fibroid until she was bedridden from weakness and loss of blood. Hemoglobin was 35, red cells were 1,700,000, white blood count was 10,000. It was quite evident that she could not stand a major surgical operation in her present condition. 1,000 c. c. citrated blood was given her and hemorrhage stopped immediately. With a week's time she had a hysterectomy and made an uneventful recovery.

(b) A second case was that of a girl 18 years old who had been vomiting large quantities of blood for some days. Her hemoglobin was 40 on admission to hospital. She was weak and still vomiting large quantities of blood, but following a transfusion of 500 c. c. citrated blood, an exploratory laparotomy was done. Sarcoma of the stomach was found. She was closed and within two weeks two transfusions of 500 c. c. of citrated blood were given. The sarcoma of the stomach was resected, and the patient left the hospital in three weeks with a hemoglobin of 55, 15 per cent higher than when she entered the hospital and after an operation of great magnitude.

(c) A third case was that of a boy nine years old, who had vomited blood and passed blood from the bowels for two months, and had general abdominal ascites, edema of feet and legs; spleen was much enlarged; had hemoglobin of 19 per cent. Diagnosis: Banti's Disease. Two transfusions of 300 c. c. each were done. Within three weeks splenectomy was done, patient made an uneventful recovery, and is living and well today. In all we have seventeen transfusions in eleven cases connected with surgical operations, and we have been pleased with the results.

Transfusion for Hemorrhagic Conditions.—namely, for purpura hemorrhagica, hemophilia; hemorrhages secondary to blood diseases, severe infections, jaundice and idiopathic uterine hemorrhage, at times is very satisfactory. We have had three cases with five transfusions, one hemophilia in which the hemorrhage was stopped temporarily for two or

three months following each of the three transfusions, but eventually terminated fatally. In purpura transfusion is not reliable. Six cases were reported by Unger with two recoveries. In bleeding of the new-born it is specific, especially in cases of melena. Temporizing by using other methods is contra-indicated.

Transfusions in Blood Diseases.—(a) Transfusions are used most often in pernicious anemia; remissions can be initiated in more than half the cases. Repeated transfusions frequently bring on repeated remissions. If no remissions occur another donor should be secured. In Pemberton's 1,001 transfusions, 657 transfusions in 185 cases were for pernicious anemia. These cases had on an average of from 1 to 30 transfusions. The results were generally good. We have done 19 transfusions in 6 cases for pernicious anemia. Four had remissions extending over periods from three months to two and one-half years. Three were able to engage in their former occupations. One case had a remission following splenectomy and transfusion of two and one-half years and entered the army as a Y. M. C. A. worker, but due to the unaccustomed hardships, had a relapse, from which he never recovered. (b) Transfusions in leukemia have been used and given temporary results in the acute anemias, and one is justified in using it as a supportive measure.

Transfusion is often of assistance in overcoming intractable suppurating processes and causing a marked increase in the vitality of the patient. Shafer in reporting thirty-eight cases of transfusions for anemia following streptococcus hemolyticus infection, found it to be a valuable asset in the treatment. The cases that had a red blood count below 3,000,000 showed marked improvement. He attributes it to additional protective substances added to the circulation and to the inhibitory action of sodium citrate on the growth of streptococcus hemolyticus. In bacteremias it is of no practical success unless immune donors are used. A number of such cases are reported in the current literature.

Transfusions have been used in certain intoxications and poisons with more or less encouraging results, as in certain intoxications

associated with pregnancy, eclampsia, and certain poisonings like benzol poisoning and illuminating gas poisoning. Major Bruce Roortson reported two cases of monoxide poisoning treated by venesection and transfusion, with recovery in both. In uremias no good results have been reported.

Transfusions may be used to prolong the lives of certain individuals with certain debilitating conditions, cancer, malnutrition, pellagra or anemia from any cause.

Contra-indications are few: (1) Bad heart, (2) chronic nephritis, (3) patients in extremis that cannot be helped by anything. Usually with proper care a heart lesion or chronic nephritis, unless very bad, is not a prohibitive contra-indication. The old method of transfusion of patients after every other method had failed and the patient was doomed to die and there was no direct indication for transfusion other than the request of anxious relatives and friends, should not be employed. It puts the operation in disrepute.

CONCLUSIONS.

1. The indications for blood transfusion are many, and its employment as a therapeutic measure is a matter for clinical judgment and experience.

2. The best results of transfusion are obtained in cases in which there has been an actual loss of blood. By promptly substituting transfused blood from a suitable donor, the patient will have practically as good a chance of recovering as if he had not lost any blood.

3. With the perfection of a simplified method of technique and with the practice of accurate preliminary blood test, blood transfusion has lost the dangers which once attended its use, and today it is a safe, reliable and proven therapeutic measure for prolonging and saving life, rather than a method of last resort.

4. The citrate method of blood transfusion is progressively becoming the method of election, because citrated blood is chemically as efficient and safe as unmixed blood even in hemorrhagic conditions, and the technique of administration is much simpler and more adaptable to varying pathological conditions than any of the other methods in use today.

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AURICULAR FIBRILLATION.

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In the normal heart, with its unimpaired powers of stimulus production, excitability, conductivity, contractility and tonicity, the circulation is carried on efficiently, the cardiac contractions under ordinary circumstances occurring with uniform rhythm, force and at regular intervals. Normally the rate and rhythm of the heart are dependent upon the interaction of the two functions of stimulus production and excitability. Ordinarily the stimulus to contraction arises in the remains of the sinus-venosus—the so-called sino-auricular node of Keith and Flack—situated at the mouth of the superior cava, and is transmitted along the auricular fibers to the bundle of His and thence to the ventricle. This regular succession of contractions—sinus, auricle and ventricle—constitutes the normal or sinus rhythm of the heart.

In auricular fibrillation, however, many of these normal cardiac powers and functions become disoriented, as it were, and we face one of the most striking as well as at times alarming of cardiac abnormalities. In the words of Mackenzie fibrillation is "a curious condition of the muscle fibers of the heart in which the individual fibers, instead of contracting in an orderly and simultaneous manner during systole, contract rapidly and independently of one another, the auricle never going into true systole, but standing still, while the wall quivers with fibrillating contractions." These irregular contractions of the auricular fibers bombard tumultuously the auriculo-ventricular bundle, where some are blocked and others passed on to the ventricle, varying in strength and in interval of arrival, which further explains the lack of rhythm and the variation in strength and force of the ventricular response. Originally Mackenzie, one of the earliest clinicians to recognize fibrillation as a clinical entity, considered

this condition to be due to a paralysis of the auricles. Subsequently, however, he modified his theory of the defective mechanism, and, since he believed that the auricles and ventricles contracted simultaneously, he assumed that a point near the auriculo-ventricular junction—most likely the node of Tawara—was the source of the irregular impulses. However, as a result of electro-cardiographic studies in recent years there seems but little doubt now that the ventricular contractions are due to impulses arising in the auricle above the auriculo-ventricular junctional tissues.

What, then, clinically occasions the occurrence of this condition? This question in the present state of our knowledge one cannot answer in detail nor with exactness other than to state that it seems to be an expression of some form of myocardial change. In support of this idea Mackenzie states that from 60 to 70 per cent of all cases of serious heart failure, with dropsy, owe the failure directly to this condition, or has the failure aggravated by it. From purely clinical observation, this to us possibly seems a little high, though it is not at all improbable that the more thorough and routine use of such aids to diagnosis as the polygraph and electrocardiograph might show the presence of cases which would otherwise be overlooked by the less exact methods of ordinary physical examination.

Fibrillation is seen at all ages—though rarely under 10 years—most of the cases (in fact, about 8 per cent) occurring between the ages of 21 and 60 (Harr). Males seem to be about twice as susceptible as females.

Valvular heart disease, especially the rheumatic form, if not an actual exciting or predisposing cause, is certainly very commonly present, and statistics show that in 50 per cent of cases there is a history obtainable of prior attacks of rheumatic fever, which have occurred usually a number of years preceding the onset of the fibrillation. Of the associated valvular lesions mitral stenosis, either alone or accompanied by regurgitation, is by all odds the commonest, being present in about 60 per cent of cases, while mitral

regurgitation alone is only found in about 5 per cent.

Harte of New York has called attention to the fact that fibrillation at times may arise as a complicating factor in the course of certain infections, notably pneumonia, where the heart had previously shown no evidence of valvular or other disease. Under these circumstances the actual cause of the condition is probably the toxemia of the infection, with its resultant myocardial changes, since it is not uncommon to see the disappearance of the fibrillation with the diminution in the toxemia. Personally within the last year I have seen two cases of well-marked fibrillation arise in the course of infections despite the fact that prior to the development of the fibrillation there was no discernible evidence in the heart of either myocardial, endocardial or other abnormality. Of these two cases, one occurred in connection with typhoid and the other in the course of an attack of amoebic dysentery. Cases have also been reported following influenza and in connection with hyperthyroidism probably in both instances explicable on the myocardial changes occurring in these two conditions.

Next in frequency to rheumatic valvular disease as a factor in causation come the degenerative conditions of late adult life, such as arteriosclerosis, nephritis, etc., and of course in this connection alcoholism and syphilis are commonly outstanding points in the history of the cases.

At post mortem the hearts of fatal cases of fibrillation show no distinctive findings, either grossly or microscopically. It is quite common to find, however, valvular defects, especially mitral stenosis, hypertrophy and dilatation, evidences of pericarditis and coronary sclerosis, while microscopically one sees acute or chronic myocardial change, with cellular infiltration, fibrosis or atrophy of muscle cells.

Symptomatology and Physical Findings.—The patient with fibrillation may seek aid for a variety of complaints. In the milder and less marked cases, where the myocardial function is still relatively competent, fluttering or palpitation may be the only complaint, while, on the other hand, in the more severe cases, where there has developed definite myocar-

dial weakness, one not uncommonly sees the well developed signs of heart failure such as dyspnoea, orthopnoea, cough, edema and the classical subjective and objective findings of a failing heart. The sense of fluttering or palpitation complained of differs from that associated with paroxysmal tachycardia in that it is not continuous and uniform, but interrupted in the typical case, due to occasional stronger beats occurring at irregular intervals amongst the weaker ones.

On examination our most interesting and instructive findings are those derived from investigation of the heart and pulse. One is impressed on auscultating a heart in fibrillation that there is present no dominant rhythm—or probably better expressed, that there is an absolute absence of rhythm. Strong beats are mixed irregularly with weaker contractions and the length of the cardiac cycle seems to never be the same. At times one hears both a first and second sound and then again only a first without the normally following second—explicable on the theory that the ventricular contraction is so weak that it does not suffice to open the aortic valves. Such contractions—too weak to open the aortic valves and propel the blood stream out into the peripheral vascular tree—are, of course, ineffectual in maintaining the circulation, but at the same time exhausting to the heart muscle, since, according to the law advanced by Bowditch, every cardiac contraction is the maximal of what the heart is capable at the moment that it contracts.

The heart rate may be quite fast—200 or above—or only moderately accelerated if at all. Mackenzie has called attention to the fact that, in patients with mitral stenosis showing a presystolic murmur accompanied by a diastolic as well, with the onset of fibrillation the typically presystolic element disappears while the diastolic remains. This phenomenon, while held by other observers not to be always constant, is probably explicable on the theory that the typically presystolic element of the murmur of mitral stenosis is due to auricular systole and, as mentioned above, there is no definite systole of the auricle in fibrillation.

The pulse, as might be expected from the above description of the heart, shows an irregularity of a most disorderly kind, the intervals between beats constantly changing and seldom being of the same duration, while the pulse beats themselves show no uniformity of strength or volume. One of the most interesting and instructive features of the pulse is the so-called pulse deficit, by which is meant the difference between the heart contractions as heard at the apex and the number of impulses that can be felt at the wrist in a given period of time. This is best and most accurately determined by two observers, one counting the heart contractions as heard at the apex and the other simultaneously counting the impulses felt at the wrist preferably over a period of at least a minute. Not only is there present an “absolute pulse deficit,” but also a condition referred to as a “relative deficit” or by some as tonal arrhythmia. By this term is meant the difference in the pressure value of successive pulse waves, and it can be clearly demonstrated with an ordinary blood pressure apparatus, showing a wide variation in the pressure value of the individual pulse waves. This “relative deficit” may persist after the absolute deficit has cleared up under treatment, is always seen in fibrillation and rarely in other types of arrhythmia.

As a result of this irregularity in the blood pressure in these cases, it has been found more instructive and helpful to determine the average systolic pressure rather than the point at which one or a few waves come through. This can be easily and accurately done in the following manner: Count the apex and radial pulse for one minute; determine the level of pressure at which no waves come through; then successively reduce the pressure 10 mm. and at each reduction count the number of waves that come through per minute until a point of pressure is reached where all the waves, as shown by the original radial count, come through. Multiply each level of pressure by the number of waves at that level and add these amounts together, dividing this amount by the apical count as originally determined. In this manner we determine the average systolic pressure of each cardiac contraction

and gain a very fair estimate of heart work.

In the rheumatic mitral group of fibrillation it is not uncommon to find an average pressure of 70, when the rate is rapid, which pressure with improvement steadily rises, in many instances reaching normal or above. In the arteriosclerotic cases of fibrillation that are still compensated, the pressure is usually over 160, and when this falls below 140, myocardial failure is threatened.

Polygraphic tracings graphically and indisputably establish the truth of the clinical observation made above as regards the apex and the radial pulse findings, and in addition in the jugular tracings show the characteristic loss of the "a" wave, proving the absence of auricular systole. The venous pulse is irregular as regards rhythm and size, and as a result of the absence of auricular systole has the "ventricular form." Electrocardiographic studies of cases of fibrillation are characterized by (a) complete irregularity of the ventricular complexes, (b) an absence of the "p" wave, (c) a series of small waves continuous throughout the entire cardiac cycle (Harte).

Prognosis.—As a rule, when fibrillation is once established, it is permanent, though it may appear, disappear and never recur again, or gradually become more and more frequent until permanently established. And since this condition is in reality probably a symptom of some myocardial change, the prognosis is directly proportional to (1) the condition of the heart muscle and its ability to carry on the circulation in an efficient manner and (2) the ease with which by treatment the irregular shower of impulses from the auricle to the ventricle can be blocked. It can be stated therefore that the prognosis is better the shorter the duration of the condition—both as regards the present attack and the past—the less evidence there is of heart muscle weakness, the slower the pulse, and the more promptly a favorable response to medication occurs.

Treatment.—Since fibrillation is caused by a highly irritable auricle, which showers the ventricle with irregular impulses, our line of attack becomes two-fold—(1) to reduce this irritability of the auricle and (2) to block the

transmission of many of these premature and irregular impulses to the ventricle—thus giving the ventricular musculature a longer diastole in which to store up energy and reserve and to allow the ventricles to become better filled, insuring a more uniform delivery of blood to the tissues of the body. Our efforts at reducing auricular irritability are largely preventive—an effort to prevent in susceptible hearts venous congestion and overfilling of the auricles, since a sudden increase in intra-auricular pressure is often a factor in inducing the onset of fibrillation. Once fibrillation is established we can only combat the irritability by rest, by venesection if seen early and passive congestion is marked, and by increased elimination in the toxic cases such as those complicating the acute infections. In the mild cases of fibrillation with a not accelerated heart rate and no signs of decompensation, no drug treatment is often needed, but only to so order the patient's life that he may live within the bounds of his cardiac capability. In the more severe cases with rapid heart action, well marked pulse deficit and impending or actually developed decompensation, our patient needs—

- (1) Rest in bed, with the avoidance of physical and mental strain and such toxic substances as alcohol, coffee, tea and tobacco, etc.

- (2) Easily assimilable food in small amounts and at frequent intervals, with proper care of the intestinal tract.

- (3) Sleep as a part of rest—to be obtained, if necessary, by the use of hypnotics and opiates.

- (4) The blockage of the many and irregular auricular impulses, thus allowing the ventricle relief from overwork. And here it is that digitalis and to a lesser degree strophanthus are drugs par excellence, and the results attained most brilliant if properly used.

According to Harte, one drachm of the tincture or an ounce of the infusion of digitalis every twenty-four hours usually suffices to attain the desired results if used for a period of several days. In a recent issue of the *Journal of the American Medical Sciences* Robinson advises the use of single large doses of the tincture by mouth, maintaining that

the desired results are more rapidly attained, being apparent in from two to five hours, and that thus the period of disability is shortened and the ventricular musculature saved the strain of overwork during the period of slower administration. The average dose used by Robinson varied from 15 to 30 c. c. of a tincture which had previously been standardized by the "cat method" described by Hatcher and Brodie. It must be borne in mind, however, that each and every case of fibrillation is a law unto itself, and that no matter what the method of administration, varying amounts of the drug will be required to secure the desired results. In three cases of my own in the past year it required—in one, 10 c. c. of digifoline hypodermically per day and in the other two 3 drachms of the tincture. So soon as normal or approximately normal rhythm is secured the dose should be reduced in terms of the heart's reaction to the reduction.

In many, if not most, cases which have existed for an appreciable time digitalis will be needed and should be continued over long periods, and in some instances even permanently. The administration of too much digitalis is possible here as in other cardiac conditions, and is shown usually by the reduction of the heart rate below 60, the development of the "coupled rhythm," the occurrence of nausea, vomiting, etc. Our desire, of course, is to attain a heart rate of 70 or thereabouts with no or at most only a small pulse deficit with the smallest dosage of digitalis needed.

As patients improve they are allowed as in many other decompensations to have gradually more and more liberties, both physical and mental, but always within the bounds of their circulatory ability.

THE GYNECOLOGICAL CERVIX.*

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On entitling this paper "The Gynecological Cervix," it is not for the reason that

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the gynecologist has to deal with the cervical conditions alone, for everyone who is practicing either medicine or surgery is interested and has to deal more or less with these conditions; but for the reason that these conditions play such a great role in the practice of the man who is doing special work in gynecology.

Before taking up any of the cervical conditions that we have to deal with, I think it well for us to consider, or rather review for a moment the anatomical and histological structures of the cervix, that we can more easily grasp just why we have or are more prone to have the conditions which are to be mentioned in the cervix, than to have them in other parts of the body.

The cervix, or the neck, is the lower or constricted portion of the uterus which has attached around its circumference, in its upper part, the vagina. The cervix is spindle-shaped in those who have had no children and cylindrical in those who have borne children, with vaginal and supravaginal parts. The former has no peritoneal covering in front, but has a pad of cellular tissue interposed between it and the bladder. Behind the peritoneum is extended over it. The vaginal portion is that part which projects down into the vagina; it is round or elliptical, with its long axis placed transversely within the vagina.

On its surface is a small opening, the external os or mouth of the womb, generally circular in shape, but at times linear. Often after the woman has borne children it is transverse and its edges are irregular. This opening divides the cervix into a posterior or upper, and an anterior or lower lip. On each side of the cervix and the upper portion of the vagina we have a space containing blood vessels and cellular tissue which is known as the parametrium, mentioned here because it is of great importance to us in making diagnosis of pelvic troubles.

The above is the general outline of the cervix; now we will come to the more minute structures. We have seen that there is no peritoneal covering in front—that is, the supravaginal portion, but the posterior surface is covered with peritoneum. The

muscular part or main bulk of the cervix is arranged in three layers of fibers, of the unstriped or involuntary type. The outer layer runs transversely or around the cervix. In the middle layer the fibers are arranged in a circular manner and contain the greater number of blood vessels supplying the cervix, and it is this layer that acts as a sphincter muscle at the internal os. The fibers of the internal layer are longitudinally placed. The cervix has a greater amount of connective and elastic tissue than the body of the uterus, hence it is of a harder consistency. The mucous membrane lining the cervical canal is sharply differentiated from that lining the body of the uterus. It is arranged in oblique ridges which separate from an anterior and posterior raphe, and has been given the name of "arbor vitae," from its resemblance to this plant.

In the upper two-thirds of the canal the mucous membrane has many glandular follicles which secrete a viscid alkaline mucus. The glands are of the compound racemose type. Extending all along the canal are little cysts of follicles, ovules of Naboth; the ducts leading to these glands become stopped at times, causing Nabothian cysts.

The epithelium of the upper two-thirds is cylindrical and ciliated. The lower one-third loses its cilia and changes into the squamous type.

The blood vessels of the cervix are chiefly from the uterine artery and vein and their branches. The veins terminate in the uterine plexuses, which empty in the internal iliac veins.

The lymphatics originate from three networks: (a) Muscular, (b) peritoneal, and (c) within the stroma. These networks are continuous with those of the body of the uterus.

The nerves come chiefly from the utero-vaginal plexus.

The above is an outline of the more important anatomical points about the cervix, with which you are already familiar, necessary for us to keep in mind as we go now to a consideration of some of the pathological conditions of the cervix.

Let us consider first laceration of the cervix and follow it to some of the more trouble-

some conclusions. The most of our lacerations come as a result or rather are caused by childbirth—unless caused by the slipping or too great pressure put on our Goodell dilator at the time when we used to do many dilatations and curettages. This naturally raises the question as to how much time or care we should take in the repair of cervical tears at the time of delivery. If we think best not to "meddle" with this condition at that time, how closely should we check our obstetrical patients before finally discharging them? We all know that the majority of cervical lacerations caused by childbirth apparently take care of themselves, but it is the few that do not that are of so much interest to the gynecologist and the general practitioner who does gynecological work.

We usually see these cases some months after delivery, prompted to come to us for treatment on account of a profuse leucorrhea, or "whites," as they express it, and suffering with considerable pain in the pelvic region. On vaginal examination we often find a laceration, either unilateral or bilateral, which may seem superficial or may extend into the broad ligaments on one or both sides. These cases usually show either an eroded or an ulcerated condition of the cervix, which may or may not be much enlarged, but in most instances there is a certain amount of enlargement of the cervix. We also often see small cysts of the cervix, cyst of Nabothian glands.

On bimanual examination the cervix is felt to be uneven and boggy. In many instances the patient complains of severe pain in the region of the parametrium, which is very much thickened and tender, especially on the side on which the cervical laceration is most pronounced.

On microscopic examination of the cervical discharge we are unable to find any gonococci, but myriads of streptococci and staphylococci may be found present. The lacerated or eroded surface on the cervix often serves as a focus of infection, this being carried into the parametrium by the lymphatics, causing a parametritis. These cases have the haggard, forlorn look which we see in many other condition where we have a focus of infection. On examination we find an eroded

or ulcerated area on the cervix which can be traced to an old laceration. These cases often respond very poorly to treatment. In fact, some of our best authors give very little encouragement for an early recovery in these cases, as the devitalized condition of the tissues militates against the treatment or convalescence of these conditions.

As above mentioned we see where infection gains entrance to the system from the cervix just as from an infected tonsil; in fact, considering the tissues, cervical glands, blood vessels, lymphatics, parametrium, etc., as being good prey for the many infections, I think we might almost be justified in classifying the cervix, if the laryngologist will pardon the name, as the "vaginal tonsil," serving as an avenue for infection of the general system. We have in the lacerated cervix a point through which simple infections gain entrance into the body, causing not only inflammatory processes in the parametrium and other tissues of the pelvis, but causing a general toxæmia, just as serious, though probably a little slower in onset, as does the infected tonsil, the teeth, etc., in other parts of the body. We will note that the type of infection just mentioned is transmitted through the tissues of the cervix by the lymphatics into the parametrium, etc.

We will next consider gonorrheal infection of the cervix, which, of course, is not dependent upon any previous trauma for entrance, but is so persistent in remaining until it takes a great deal of the gynecologist's time when he attempts to eradicate it by palliative measures. The nature of onset of this infection is so different to those who have previously considered that I think it well for us to look for a moment at the method of attack, so we can better see just what the line of defense will be.

The gonococci have been very aptly spoken of as "surface riders," which means that the germs remain pretty close to the mucous membrane, of course burrowing into the canals and pockets of the glands which are involved, but as a rule not burrowing into the deeper tissues, as do the other cocci; for example, when a woman contracts a gonorrheal endocervicitis this infection does not go below the mucous membrane and glands of

the cervix, but "rides" along the surface of the endometrium into the tubes, causing "that which we have with us always," pus tubes. But even in this long journey which the germs have traveled they have only sought the superficial level, instead of digging deep into "their slime." Apparently when the gonococci have gained entrance into the cervical glands and ducts, they have obtained the goal for which they have been striving. Here they remain to annoy both patient and doctor for a time indefinite, for being hidden away in these compound racemose glands renders them so securely safe from the ordinary palliative treatment that it seems futile to attempt to get them out with our ordinary measures. By way of parenthesis, we might say just here that the histology of the cervix is such that it is rather difficult for germs to get through the internal os unless they have some outside help. Only about three organisms get by this barrier readily—the spermatazoon, gonococcus and tubercle bacillus, the latter comparatively seldom.

Carcinoma of the cervix, as you know, is found on the epithelial surfaces of the cervix at its beginning, and if left undiagnosed and untreated for months or years until the deeper tissues have become involved we have given up our best chances for a cure, whether by surgery—Wertheim or any other kind of operation—or by radium or whatever other line of treatment might be instituted. Hence if we have an inkling as to what might be present we should do what we are going to quickly, for truly "procrastination is the thief of time." This condition, different to the one we have previously discussed, is transmitted to the deeper tissues and glands by the lymphatics.

There are many other cervical conditions which are very necessary to be considered in making diagnoses, but as we have not time to mention, much less to discuss them, I think it more profitable to go a little further into the method of getting to those conditions and of meeting them.

I think that all of our general examinations, as well as gynecological examinations on the female, should cover the examination of the cervix and other female organs, just

as does our routine examination cover the examination of the teeth, tonsils, etc. Especially is this necessary in those who are married and have borne children, for it is so easy to overlook a focus of infection in the cervix which can account for the manifold constitutional symptoms which the patient may be suffering. Not only do we preclude the danger of overlooking some trouble of a chronic nature, but we will find many of our epitheliomas or carcinomas or other troubles in time to really do something for them. Let me say just here that I don't think we should any more stop at an examination of the female organs in doing gynecology than should the man doing general medicine stop without doing a gynecological examination, unless this has already been made by a competent man, as it takes the "whole to leaven the hump." Then after the diagnosis has been made, the condition found is ready to be treated within its respective sphere.

Before closing, I feel that it might be timely to say just a word about treatment in these cervical conditions which have been mentioned:

First, if we have a focus of infection in the cervix causing a parametritis or other pelvic trouble, it is useless for us to attempt to treat the patient in a sane way until we have removed this infection. I mean the focus. If this is on an old scar or erosion where there has been a laceration into the broad ligaments, the thing is for us to do some form of trachelorrhaphy to remove this focus, unless it can be eradicated by palliative measures.

Second, where we have a chronic inflammation of the cervical glands (which are of the compound racemose type), due to either specific or non-specific type of infection, it is useless for us to make local applications of silver or other drugs to the cervix or to prescribe douches, so far as any hope of cure is concerned. **They will not cure**, the reason being that the infection has extended into these glands and our attempts at the cauterizing or douching is to cauterize or douche the mouths of the ducts leading to the glands and the point of real infection has not been touched. Then what shall we do? It is usually left to cauterize with heat or other-

wise, or to operate. The latter I prefer to do.

Every surgeon has his method of trachelorrhaphy. The one I prefer is the Sturmdorf method, which, in principle, is to remove all of the scar and infected tissue of the cervix, without sacrificing the musculature and hence enhancing the probability of abortions or miscarriages should the patient become pregnant again. This is done by removing the tissue, glands, etc., cutting a cone with the apex upward toward the internal os, and the mucous membrane to be stitched so as to give a healthy lining to the newly formed cervical canal.

Of course, for carcinoma of the cervix, necessarily another type of operation would have to be done. So would the treatment for the various other cervical troubles have to be suited to the individual cases.

CONCLUSIONS.

1. We should keep in mind the anatomical and histological structures of the cervix, that we might be able to more fully appreciate the pathological processes which go on within the cervix and adjacent tissues after trauma or after infections have been acquired.

2. Our general examination on the female should in all cases, at least on those who have borne children, not be concluded until a cervical examination has been made to ascertain whether we have old troublesome lacerations or infections of the various types present, as this is so often the focus of infection of general toxæmias.

3. When these foci of infection have been found they should receive treatment at the time other troubles are being taken care of, if we hope to get lasting results.

4. When we have a chronic infection of the compound racemose glands it is useless for us to expect to clear up the leucorrhea by the use of palliative measures, as we only treat the mouths of the ducts leading to the glands and the focus of infection remains unharmed and continues forming the toxins which are taken up by the blood and lymphatic vessels, being carried into the parametrium and other pelvic tissues and into the general system.

5. Beware of the Goodell or other forms of cervical dilators and the curette, as we often open the internal os or gate, so to speak, and

let in or carry infections to the endometrium, thence to the tubes, etc., in our "weird" effort to remove "that endometritis causing the leucorrhea." This latter we know as a rule to be untrue, as in most instances leucorrhea is coming from the inflamed compound racemose glands of the cervix and are not affected by our curettage.

6. Do not understand me to allege that all of our troubles, constitutional or local, are due to the above mentioned cervical conditions, for I don't, but my plea is for us to incorporate this routine in our general examinations, so that when these conditions are diagnosed we can give a rational treatment at the proper time.

PHARMACEUTICAL BARNUMS.

The exploiter of nostrums to the medical profession, realizing that at least a pretense must be made of giving the composition of medicaments offered to the physician, declares that his clay poultice has for its base "anhydrous and levigated argillaceous mineral." This sounds much more imposing than "dry and finely powdered clay," and satisfies by its very sonorousness. Now comes a product exploited chiefly to members of the dental profession, but also, it seems, to physicians. These are "activated" tablets, which are "anodyne, analgesic, febrifuge sedative, exercising (sic) antineuralgic and antirheumatic action." Their composition is stated to be "an activated, balanced combination of the mono-acetyl-derivative of para-amidophenetol together with a feebly basic substance in the alkaloidal state from the *Thea-Sinensis*." This means nothing more than acetphenetidin (phenacetine) and caffeine.—*Journal A. M. A.*, January 1, 1921, p. 42.

DIPHTHERIA ANTITOXIN AND DIPHTHERIA BACILLI.

The well established curative properties of diphtheria antitoxin must not be confused with its possible value as a prophylactic against the disease. Attempts have been

made to apply diphtheria antitoxin locally in the pharynx and nares with the hope of eradicating the objectionable micro-organisms that may have found lodgement there. Recent investigations to determine the effect of diphtheria antitoxin in preventing lodgment in and growth of the diphtheria bacilli in the nasal passages of animals were entirely negative.—*Journal A. M. A.*, January 1, 1921, p. 41.

SERUMS AND VACCINES IN THERAPY.

In the development of serums and vaccines, scientific investigation and experimentation have preceded clinical tests of those products which have proved of permanent worth. Whenever the clinical use of serums and vaccines has proceeded beyond well established facts determined by laboratory research, the result has usually been disappointing. To submit a serum or vaccine for clinical trial without successful preliminary laboratory investigation of its probable worth is an imposition on the profession. The success of diphtheria antitoxin and antityphoid vaccine has prejudiced the profession and public in favor of vaccines and serums so that they are willing to accept a new serum or vaccine simply because it is a serum or vaccine. In his introduction to a series of articles on serum and vaccine therapy which is now being published by the Council on Pharmacy and Chemistry, Flexner points out that in only a few instances has the anticipation been realized that a curative antiserum for each disease would be discovered. The history of antipneumococcus serum affords a striking example of the difficulties and pitfalls that are encountered in the development of remedies of this class. Thus far only one therapeutically active serum, Type I, has been developed and this serum is not effective against infections by other types of pneumococci. Despite this, we are being offered today for clinical use "polyvalent" antipneumococcic serums recommended by the makers for the use in all types of pneumococcus infection.—*Journal A. M. A.*, January 8, 1921, p. 115.

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee

Office of Publication, 327 7th Ave., N., Nashville, Tenn.

MARCH, 1921**EDITORIALS****A GOOD PAPER—WHOSE?**

There is a real good paper on "Tubercular Peritonitis" in the hands of the Editor of the Journal. We want to print it. We need it. We have been needing it for several months. But we know not whose it is. We are afraid to print it over or under our own name, for fear its author will call our hand. Whoever wrote it made no mark on it to show his authorship, and we do not recognize the typewriting as the product of any particular machine of our immediate and intimate acquaintance. We have come to be pretty good at guessing who wrote which, because about one-fifth of the papers that come to the Journal have no names indicating their authorship, but this particular paper has us beat.

There are several things about it that make it impossible for us to fix the responsibility for this paper. For one thing, it is double-spaced. The sentences begin with capitals and end with periods. Insofar as we have yet discovered, there seems to be a subject and a predicate for each sentence. There are no blank spaces in it for words which the typist could not read and which the author neglected to fill in. Not once in the whole paper is there to be found a wildly rambling series of marginal lines indicating that a sentence on the ninth page is to be transposed to fit into the third paragraph on the first page. Neither are there any words scratched out and substituted for with hieroglyphics that appear to have been made by an intoxicated Chinaman. We are not going to go so far as to say that "tubercular" does not appear where "tuberculous" should be used, but it's a pretty good paper, at that. The most wonderful thing about this paper, though, is the

evidence it bears that the man who wrote it knows how to spell or has a stenographer who does. Now, don't all of you claim it, because we know some several to whom it cannot by any possibility belong!

Whose?

LOST TITLES.

At least one—perhaps more—of the members of the Association gave the Secretary the title of a paper to be read at the Nashville meeting when a casual meeting on the street or elsewhere made the opportunity for doing so. We distinctly recall that such an occurrence took place, but cannot recall who the member was nor what was done with the note that was made of the title of the paper. Please look over the "Preliminary Program" in this number of the Journal and if you are the man who gave the subject of your paper to the Secretary and do not find it on the program, send it in at once. We do try to remember everything that we are asked or told to do—on the side of the road, in the hotel lobby, on the railroad train, over the telephone, by messenger three or four times removed, or however else we may be told—but advancing age seems to be dulling our memory to the extent that makes it impossible to keep it all in mind indefinitely. Write it! Then there will be a dependable record.

THE MEMPHIS BULLETIN.

The Bulletin of the Memphis and Shelby County Medical Society is a new publication which is coming each month to the Journal. The Bulletin is a beautifully printed paper of four pages and appears on the first of each month. In it is published the proceedings of the bi-weekly meetings of the Society, the program for the coming month, news and notes of interest to the profession of Memphis and Shelby County, a schedule of clinics at the Memphis hospitals, and, when space permits, the proceedings of the Memphis, Eye, Ear, Throat and Nose Society. The papers read at the meetings are not published in full, but are abstracted and the remarks of members in discussion of papers read are reported.

The first thing we noted in looking over the Bulletin for February was that the attendance at one meeting was 75 and at another was 69, while in the March Bulletin the attendance for one meeting is reported at 84 and at the next at 95. The Memphis and Shelby County Medical Society is decidedly the largest society in the State, but at that we are of the opinion that an attendance of 95 is fine, and we wonder if the Bulletin is in any way responsible for the increase shown in the meetings held in February as compared with those in January. Our guess is that the Bulletin helped.

The next thing that impressed us in the Bulletin was the fact that at each meeting of the Memphis society three papers were read, according to schedule, and that the discussion of each paper was lively. The papers are well abstracted in the Bulletin and the discussions well reported. Then, too, at each meeting we note that two or three good cases were reported, also according to schedule, and well discussed. We dare say that the publication of the monthly bulletin will help the program and the discussion of papers and case reports.

The reports of the Eye, Ear, Nose and Throat Society show an attendance of from fifteen to eighteen members. It seems that this is a purely clinical society. At one meeting eleven patients were presented, while at another there were eight. Pathological specimens are also exhibited at these meetings and cases are reported. It is quite evident that this is a working body, but we predict that the Bulletin will help here, too.

In the very first issue of the Bulletin the subject of a home for the Memphis and Shelby County Medical Society is agitated. The membership is well above two hundred—in fact, is gradually approaching three hundred. It is not to be doubted that a home of its own will make the organization stronger in every way. Here we venture another prediction—to the effect that it will not be long before this very development will take place in Memphis.

We congratulate the Memphis and Shelby County Medical Society upon the progressive spirit that prompted the issuance of a monthly bulletin and also upon the real scientific

interest that is easily manifest to one who will read the account of the regular meetings of the Society.

TENNESSEE SECTION OF AMERICAN COLLEGE OF SURGERY.

The Tennessee Section of the American College of Surgeons will give its first clinical session in Nashville on March 21 and 22. The Fellows of the College residing in Nashville will conduct the clinic for the benefit of the other Fellows throughout the state, who are expected to attend almost in a body. The meeting is also going to have a very interesting scientific program, consisting of several orations by distinguished surgeons who will be the guests of the Tennessee group and who will take up some of the latest and most important surgical problems of the day.

There will also be a large general public meeting at which a number of health programs will be discussed before the people of Nashville. The program of the College, outlining its ideals and purposes, will be strongly accentuated. Hospital standardization with all that it means to the public and to the profession will be presented by experts along that line, and in this way the College will be brought home to the people so they may understand the immense advantage of an organization of this character, whose aims are for better surgery, more perfected and well conducted hospitals, discouragement of unnecessary operations and of the nefarious practice of fee division, which, while it has been slight in this state, has at times brought opprobrium upon the good name of the profession elsewhere in the United States.

The Nashville Fellows are going to have clinics in four hospitals during the two days of the meeting, and a number of social events have been planned for the visitors.

The plans of the Section meeting have been carried out very successfully in all the other states, and it is confidently expected that Tennessee will, with the character and number of men which compose the College here, give a splendid clinic and a very excellent public hearing for the cause of better surgery.

The Nashville men who will conduct the clinic are as follows: Dr. R. A. Barr, Dr. P.

Bromberg, Dr. W. A. Bryan, Dr. L. E. Burch, Dr. R. Caldwell, Dr. C. N. Cowden, Dr. M. M. Cullom, Dr. W. C. Dixon, Dr. Duncan Eve, Jr., Dr. Duncan Eve, Sr., Dr. W. O. Floyd, Dr. R. E. Fort, Dr. J. F. Gallagher, Dr. W. D. Haggard, Dr. J. W. Handly, Dr. W. M. McCabe, Dr. T. D. McKinney, Dr. T. G. Pollard, Dr. A. L. Sharber, Dr. S. R. Teachout, Dr. H. M. Tigert, Dr. H. Wood.

MEDICAL BIOGRAPHY, ET CETERA.

(Continued.)

The number of the doctors who have established firmly for themselves places among the famous men of letters is much larger than it is generally known to be. Most of these, however, are better known as writers than as doctors, though an occasional one has attained fame and station in both fields. Of the several who might be selected from this class, and as one whose work was recently done, we have chosen Silas Weir Mitchell of whom to write in these little sketches.

Dr. Mitchell was born, lived his wonderfully useful and productive life, and died in the city of Philadelphia, where he was born in 1829 and died in 1914. He studied medicine at the University of Pennsylvania and at Jefferson Medical College, and was graduated from Jefferson in 1850. During the Civil War he was in charge of Turner's Lane Hospital for Diseases and Injuries of the Nervous System, and it is probable that his service in that institution determined the character of the work in medicine to which his long and useful after-life was to be devoted.

Dr. Mitchell early discovered a deeply scientific bent and did extensive research in neurology, physiology and toxicology—a most natural grouping of subjects. He was a prolific writer on scientific subjects in his earlier years, having contributed more than 150 published papers to medical literature, which covered a very wide range, from "Researches on the Venom of the Rattlesnake," on through "Gunshot Wounds and Other Injuries of Nerves," "Fat and Blood and How to Make Them," "Reflex Paralysis," etc. He was the deviser and proponent of that plan of treatment for certain conditions which came to be known as the "rest cure," and the results

secured by him in using this method in his hospital, where he could exercise complete control, brought many patients to seek his aid. He was the recipient of many honors at the hands of the profession in his own city and state and in this country, as well as in foreign lands.

Though Silas Weir Mitchell was known throughout the world as a great physician, he was, probably, known to even greater numbers of persons as a writer of fiction and poetry. His literary work had such merit as to win for him a permanent place of prominence among modern writers of fiction and poetry, and also won for him that recognition from English and Continental men of letters which secured his election as fellow in many of the oldest and most exclusive societies and colleges abroad. "Hugh Wynn, Quaker—Soldier of the Revolution" was the name and description of the character about whom Dr. Mitchell built the historical novel which was probably his most widely circulated literary work. This is a most delightful story, founded largely on fact, and sets out much of the history made in and around his native city during the period of the Revolutionary War. "The Autobiography of a Quack" was another of Dr. Mitchell's books which was much in demand—and yet is—among the medical profession and the laity as well. His poems have not been so widely read as his works of fiction in prose, but were all of a very high order of merit.

As a physician, as teacher, and as writer of scientific papers as well as of American prose and poetry dealing with history and romance, Silas Weir Mitchell made a mark on the pages of the history of his time which will cause his name to be long remembered as a benefactor of his race and country.

While most of the notables of medicine have been highly cultured men, who had the advantages of thorough training in great schools and universities, we once in a while encounter in medical biography the story of a fruitful life which is entirely worthy of a lasting place in the annals of the profession and in the history of the nation, in spite of the disadvantages accruing from the lack of a fin-

ished education. As an example, we present the name of one of the real pioneers in medicine, whose life was lived and whose epoch-making work was done in one of our neighboring states—Ephraim McDowell.

The great aversion which Dr. McDowell had for writing, if, indeed, it were not the great difficulty which he found in writing at all, led to most fervid and persistent objections, in this country and abroad, as to the validity of his claim to distinction. Because of his inaptitude with the pen, McDowell did not publish his work on the removal of ovaries for eight years after his first operation. During that time others had also performed the operation, which finally was proven to have been first done by McDowell in 1809, and which made his fame world-wide and secure in surgical history.

Ephraim McDowell was born in Rockbridge County, Virginia, in the year 1771, and studied medicine at Staunton, Virginia, and at Edinburgh. He did not graduate, but in 1825, years after he had become famous, the University of Maryland conferred upon him an honorary M. D., the only degree of any sort that he had. After his return from Edinburgh, Dr. McDowell located at Danville, Ky., a town now doubly famous; first, because there it was that McDowell lived and worked and died, and second, because there is it that Center College has corralled a group of football stars from Texas and other lands that went out and over the land and humbled the colors of practically all other aggregations of muscle and brawn from our modern institutions of learning that met them in combat. Verily, Danville, Ky., has twice been "put on the map"—in the last century by "the father of modern surgery," and in this by the Center College football team. We confidently assert that the size and color of that spot representing Danville on the map of the twentieth century is larger and more colorful, if less indelible, than that spot representing the same village on the map of the nineteenth century.

McDowell in 1809 performed the first ovariectomy on the person of a Mrs. Crawford, a Tennessean, who recovered and lived to be some ninety years old. It was not until 1817 that this, his first case, and two others of like nature were reported in the literature, when

it was published in the "Philadelphia Eclectic Repertory and Analytical Review," under the title, "Three Cases of Extirpation of Diseased Ovaries." The delay in this publication came near losing for Dr. McDowell his merited place in the sun of medical fame. (We hope that the learned aggregation of talent and wisdom which composes the membership of our own state organization will take due warning and remember that the columns of this Journal are open to them for recording their own work, whether it be purely original or less so.)

Dr. McDowell acquired fame, also, by marrying the talented daughter of that famous Kentucky American, Governor Isaac Shelby, and by performing a lithotomy on James K. Polk, when the afterwards president was only thirteen years of age. His reputation as a wonderful surgeon was greatly enhanced by his having done twenty-two lithotomies prior to the year 1828 without a death. The period from about 1820 to about 1875 or 1880 seems veritably to have been the "stone age" in surgery.

We can but wonder how Ephraim McDowell would feel could he return to this mundane sphere and witness the careless abandon with which neophytes and masters rampage through the abdominal cavity, seeking what they may remove and removing it forthwith!

Ephraim McDowell was a hero, and his heroism made plain a pathway of surgery through which wonderful benefactions have been bestowed upon humankind. His home should be a shrine for the men of medicine as long as this country lasts, and Danville should be known to the world because it was his home, rather than because of a group of bull-necked "college students" have won a few football games.

Doctors have played a part, and very frequently a major part, on the stage of American history, and the stories of the lives of many who have wrought well and mightily in many fields apart from medicine are all too poorly preserved and all too seldom repeated. David Ramsay, Pennsylvanian, patriot and hero, successful physician in his adopted state—South Carolina—unflinching advocate of the rights of the Colonies, surgeon in the Conti-

nental Army, captured by Cornwallis and imprisoned, member of the Continental Congress, a great writer of history—how many of us know of him?

James Thacher, of Massachusetts, who, as surgeon in the Continental Army, witnessed the execution of Major Andre, and was thereby able to refute the hateful charges made concerning the alleged maltreatment of Andre and of the British uniform; and who was the author of the American Dispensatory, the manuscript of which was submitted to his medical society for approval before it was published. How many of us ever heard of him? (And how many manuscripts in this day and time are submitted to medical societies for approval? And how many would ever see further the light of day if they were so submitted?)

And Zabdiel Boylston, 1684, Massachusetts, who was first, acting upon the suggestion of Cotton Mather, the famous Puritan preacher, to practice inoculation for the prevention of smallpox in this country, and who persisted, in spite of legislation against him and against the practice of inoculation and in spite of many threats against his life. How many of us have known anything of Zabdiel Boylston?

And James McHenry, military surgeon and politician, American patriot, pupil and friend of the great Dr. Benjamin Rush, secretary to General Washington, staff officer of General Lafayette, member of the Confederation Congress and of the Constitutional Convention, Secretary of War in the cabinets of Washington and of Adams, and dismissed by Adams because he was for strong national defense and was an intense partisan of Alexander Hamilton; and the man for whom Ft. McHenry was named. How many of us have known that a doctor has ever served as a member of a President's cabinet? McHenry served in the cabinets of two Presidents. Just lately we heard the statement made, as we have heard it made more than once before by prominent American physicians, that no doctor has ever been in a cabinet.

The history of medical men who have done great things has not been preserved and studied in this country as it should be preserved and studied, and our profession is altogether

too indifferent to such history, in which great pride can well be taken. Doctors have given distinguished service in as many fields in the lives of this and other nations as have the members of any profession. Nowhere can there be found as much of romance or of the stern realities, as much of sacrifice or as much of success, as much of danger or as much of rewards, as much of persecution or as much of grateful honors rendered as can be garnered from the stories of the lives of the eminent men of medicine. As soldiers, as statesmen, as writers, as scientists, and as citizens they have served with as great distinction as have those of any other group of men. But, however great the distinctions and the honors that may be conferred upon them, and however great the value of the service they may have rendered in past history or may in the future render, no rewards nor any honors will measure up with the gratitude that has always been theirs from those to whom they have ministered as physicians; nor will the benefactions from their service anywhere outside of the practice of their profession measure up with those resulting from their conscientious devotion to the practice of medicine for the relief of human suffering, the prevention of disease, the prolongation of human life, and for increased efficiency and happiness of the race as these may be effected through the workings of scientific medicine.

John David McCrae, Canadian physician, born in Guelph, Ontario, successful practitioner and teacher, co-author with Adams in the production of a standard work on pathology, contributor to Osler's Modern System of Medicine, soldier and patriot and poet, died in France in 1918, after four years distinguished service with the Canadian forces in the great world war.

Shortly before his death John McCrae wrote the little poem which has brought lumps into thousands of throats and has fired the hearts of many thousands of men throughout the whole world. He called it "In Flanders Fields." You have all read it and heard it many times. Reading it now, in the light of all that has become known of the practices of certain nations before and during the war, and in the light of developments since the war,

one can but wonder if the ends of justice were served when the armistice was signed a little more than three years ago. One stanza of McCrae's poem is

In Flanders Fields the poppies blow
Between the crosses, row on row,
That mark our place, and in the sky
The larks, still bravely singing, fly,
Scarce heard among the guns below.
We are the dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved; and now we lie
In Flanders Fields.

Take up our quarrel with the foe,
To you from failing hands we throw
The Torch—be yours to hold it high.
If you break faith with us who die
We shall not sleep, though poppies grow
In Flanders Fields.

Who ever heard more impressive utterance of challenge to all men who should oppose tyranny than that voiced in John McCrae's poem? It was a message from a soldier soon to pay the great price to the soldiers who should be left to fight. That message was, "Fight for the Right!" and came from one worthy to give a message. I believe that if John McCrae had known that his end was near and had been asked or permitted to leave a message for the workers in the profession in which he had served so well, it would have been of similar import to that so beautifully and so inspiringly expressed in "In Flanders Fields." Well might it have been in part in the very words, "To you from failing hands we throw the torch—be yours to hold it high! If you break faith with us who die, we shall not sleep."

There should be more study of medical history in general and of the lives of the great masters of medicine. In them we of this day will, or certainly should, find inspiration that will determine us to do our earnest best to uphold the noblest ideals of our great profession and to perfect ourselves in its practice, and, if possible, to add something to its knowledge. Thus, and only thus, we would keep faith with those who have labored and have added luster and brilliancy to the record of medicine and, dying, have thrown to us "the torch" to hold high, each of us as high as

our individual powers and opportunities will permit.

(To be continued.)

COMMITTEES OF TENNESSEE STATE MEDICAL ASSOCIATION.

Committee on Public Policy and Legislation: H. M. Tigert, Nashville, Chairman; H. S. Shoulders, Nashville; A. G. Nichol, Nashville; J. J. Cullings, Memphis; E. R. Zemp, Knoxville.

Committee on Scientific Work: Olin West, M. D., Chairman; H. P. Larimore, M. D., Chattanooga; J. J. Hobson, M. D., Memphis.

Committee on Mentors: L. A. McSwain, M. D., Paris, Chairman; M. A. Blanton, M. D., Baileytown; D. E. Shields, M. D., Morristown; J. G. Eblen, M. D., Lenoir City; J. Y. Abernathy, M. D., Chattanooga; S. S. Moody, M. D., Shelbyville; M. B. Murfree, M. D., Murfreesboro; G. H. Preece, M. D., Nashville; W. J. Sugg, M. D., Dickson; J. J. Waller, M. D., Oliver Springs; J. L. Edwards, M. D., Brownsville; M. L. Blanton, M. D., Union City; T. B. Wingo, Martin; B. F. Fyke, M. D., Springfield; P. H. Woods, M. D., Memphis.

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Committee on Conservation of Vision: E. C. Ellett, M. D., Memphis, Chairman; L. M. Scott, M. D., Jellico; W. G. Kennon, M. D., Nashville.

Committee on Health and Public Instruction: S. S. Crockett, M. D., Nashville, Chairman; W. N. Lackey, M. D., Gallatin; A. F. Richards, M. D., Sparta; W. J. Matthews, M. D., Johnson City; Oliver W. Hill, M. D., Knoxville; John B. Steele, M. D., Chattanooga; Wm. Krauss, M. D., Memphis; N. S. Walker, M. D., Dyersburg; J. F. Myers, M. D., Covington.

Committee on Cancer: W. D. Haggard, M. D., Nashville, Chairman; J. M. Maury, M. D., Memphis; J. W. Brandau, M. D., Clarksville; C. P. Fox, M. D., Greeneville.

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M. D., Memphis; L. E. Bureh, M. D., Nashville; W. K. Vanee, Sr., Bristol; Geo. R. West, M. D., Chattanooga; Hermon Hawkins, M. D., Jackson.

Committee on Social Insurance: H. B. Everett, M. D., Memphis, Chairman; B. S. Rhea, M. D., Lebanon; J. T. Moore, M. D., Algood; Robt. Caldwell, M. D., Nashville; C. J. Carmichael, M. D., Knoxville.

Committee on Hospitals: W. Scott Farmer, M. D., Nashville, Chairman; J. P. Taylor, M. D., Wartrace; W. C. Dixon, M. D., Nashville; G. C. Williamson, M. D., Columbia; J. W. Sanford, M. D., Ripley; H. L. Faneher, M. D., Chattanooga; W. P. McDonald, M. D., Spring City; C. N. Cowden, M. D., Nashville; E. C. Ellett, M. D., Memphis; J. K. Blackburn, M. D., Pulaski; J. A. McCulloch, M. D., Maryville; G. E. Horton, M. D., Shelbyville; J. C. Brooks, M. D., Chattanooga; S. H. Hodge, M. D., Knoxville; J. P. Tillery, M. D., Knoxville.

Committee on Arrangements: W. G. Kenyon, M. D., Nashville, Chairman; L. E. Bureh, M. D., Robt. Caldwell, M. D., Jas. P. Handly, M. D., C. F. Anderson, M. D., Nashville.

AN IMPORTANT MEASURE.

It seems that under the laws of Tennessee as at present composed, a physician is subject to suit for alleged malpractice at any time during the six years immediately following the date of attendance upon the person who may bring such suit. A bill has been drawn and introduced in the present Legislature having for its purpose the amendment of Section 2772 of the Code of Tennessee in such manner as to make one year the limit of time for entering malpractice suits. A copy of this bill is presented below, and it is hoped that every member of the Tennessee State Medical Association will seek the support of his representatives in the Legislature for this bill. Certainly the purpose of the bill is reasonable and just.

AN ACT TO AMEND SECTION 2772 OF THE CODE OF THE STATE OF TENNESSEE.

"Section 1. Be it enacted by the General Assembly of the State of Tennessee, that Section 2772 of the Code of Tennessee be amend-

ed so as to read as follows: 'Actions for libel, for injuries to the person, false imprisonment, malicious prosecution, criminal conversation, seduction, breach of marriage promise, statute penalties and malpractice of or by physicians, whether such actions be founded in tort or upon contract, within one year after cause of action accrued.'

"Sec. 2. Be it further enacted, that this act take effect from and after its passage, the public welfare requiring it."

NOT YET HEARD FROM.

There are several county societies, among them some of those in our largest counties, from which no report of any sort has yet been received. It should be remembered that the names of all 1920 members who have not been reported for this year's enrollment before April 1 will be dropped, and the Journal will not be sent to them after this number.

It is rather remarkable how the counties report, year after year, in the same old order. The first one year are first the next, and the same general order obtains on the other end of the list.

Something more than 900 members were enrolled for this year on March 1st. Let's make it 1,500 by the first day of April.

WHY NOT LEARN AND ACT?

The Tennessee State Board of Health has for more than ten years been trying to get the people of this state—including the entire medical profession—to believe a most positively demonstrated fact—namely, that hookworm disease is a serious malady excessively prevalent in many counties of Tennessee. Some have been convinced and have acted; some have been convinced but have done nothing; some have not been convinced.

Kofoed and Tueker, in the American Journal of Hygiene, January, 1921, report their findings after a carefully conducted study of the "Relationship of Infection by Hookworm to Incidence of Morbidity and Mortality in 22,842 Men of United States Army at Camp Bowie, Texas, from October, 1917, to April, 1918." They tell the same old story that has

been told many times, by many workers, in many places—the same old story that our own State Board of Health has told and retold many times after most conclusive demonstrations.

Kofoed and Tucker made examination of 22,842 men, some of whom came from areas with heavy hookworm infection and some from areas where there is no hookworm disease, and found that 3,079, or 13.5 per cent, had hookworms. It is to be remembered that these were all army men—not barefoot children in rural homes. They found that the group with the hookworm disease showed an increase over the negatives of 27.9 per cent in men sick; an increase of 88.6 per cent in sick calls; an increase of 76.5 per cent in hospital admissions.

They found that: Positives for hookworm showed an increased susceptibility for tonsillitis, laryngitis, bronchitis, pneumonia and measles.

They found that: In companies where the hookworm infection was above ten per cent the mortality was 1.5 per cent, as against .8 per cent in lightly infected groups.

They found: That in one regiment with 30 per cent hookworm infection the deaths were 2.6 per cent, as compared with .8 per cent in the rest of the division, in which the infection was 10.7 per cent.

They found: That an increase of 284 per cent infection in that same regiment went right along with an increase of 325 per cent in mortality from pneumonia, as compared with the rest of the camp.

The same old story! Why not learn? Why not act? There is a very definite responsibility resting upon the doctors of Tennessee in this matter of hookworm disease and its treatment and prevention. Some of our counties showed an infection in school children of more than 60 per cent several years ago, and the indications are that in some of these same counties the same infection yet exists. In other counties a very definite reduction has been made.

We still hear, now and again, of an operation for this or that with no beneficial results secured and then—thymol and salts, all well and fat!

We still hear, now and again, of diagnosis of ulcer of the stomach, tuberculosis, this, that and the other, and then—back to dear old “Doe” in the country, thymol and salts—all well and fat!

We still hear, just once in a while—sometimes, twice in a while—of “Doe” sending ‘em in to the city where the “big gun,” after exhausting every other possibility, has hookworms looked for and found, and then—thymol and salts—all well and fat!

Why not learn definitely a well established fact? And, having learned, why not act?

Chenopodium gets ‘em, too, if you prefer that to thymol.

THE PLACE AND TIME.

The annual meeting of the Tennessee State Medical Association will be called to order at 10 a. m., April 12, at the Y. M. C. A. Building, Seventh Avenue, North.

The House of Delegates will meet at 1:30 p. m., at the same place.

The Eye, Ear, Nose and Throat Section will meet at the Tulane Hotel at the time stated in last month's Journal.

It is important that all meetings shall be started right on time, for the program is quite full.

OFFICERS OF THE SECTION.

The officers of the Section on Eye, Ear, Nose and Throat of the Tennessee State Medical Association are: Chairman, Dr. E. C. Ellett, Memphis; Vice-Chairman, Dr. E. B. Cayce, Nashville; Secretary, Dr. Louis Leroy, Memphis.

SECTION DINNER.

Members of the Eye, Ear, Nose and Throat Section present at the annual meeting will be entertained at dinner at six o'clock on the evening of Tuesday, April 12, by Dr. and Mrs. E. B. Cayce.

LETTING DOWN THE BARS.

A bill, bearing the signatures of a dozen or more members of the House, has been introduced in the present Legislature which, if passed, will virtually destroy the medical practice laws of Tennessee, will make it impossible for Tennessee physicians to enjoy the benefits of reciprocity, will make this state the "happy hunting grounds" of medical incompetents from anywhere and everywhere, and will encourage the establishment of one or more medical diploma mills in the state.

The bill referred to is House Bill No. ----. It starts off with a lot of "wherefores" and the usual succeeding "therefore," the intent of which is to make it appear that the medical practice laws now in force were conceived, hatched and perpetrated by the doctors of Tennessee for their own selfish purposes and without any regard whatsoever for the public welfare. The preamble insinuates—almost declares—that the only interests served by the present laws are the interests of the doctors and of medical schools. It should be easy to imagine from the character of the preamble just what sort of a bill this is. We regret that it was introduced too late to be available for printing a copy in this Journal. If, however, it is thought by any who read this that our present medical practice acts are of any benefit to the public or to the profession, those who think they are might communicate with their representatives and seek to prevent the enactment of House Bill No. ----, which will leave Tennessee entirely out of the list of states with any sort of reasonable requirements for safeguarding medical licensure.

Another bill lately introduced provides for a "Board of Chiropractic Examiners."

Still another bill has been introduced since the above was written which destroys the "Preliminary Board of Examiners" law, and will put us back where we were thirty years ago.

PROPHYLAXIS.

Irregular intercourse has existed from the beginning of recorded history, and unless

man's nature wholly changes—and of this we can have no hope—will continue. Resisting all attempts at solution, the social evil remains the great blot upon our civilization, and inextricably blended with it is the question of the prevention of syphilis. Two measures are available—the one personal, the other administrative.

Personal purity is the prophylaxis which we, as physicians, are especially bound to advocate. Continence may be a hard condition (to some harder than to others), but it can be borne, and it is our duty to urge this lesson upon young and old who seek our advice in matters sexual. Certainly it is better, as St. Paul says, to marry than to burn, but if the former is not feasible there are other altars than those of Venus upon which a young man may light fires. He may practice at least two of the five means by which, as the physician Rondibilis counseled Panurge, carnal concupiscence may be cooled and quelled—hard work of body and hard work of mind. Idleness is the mother of lechery; and a young man will find that absorption in any pursuit will do much to cool passions which, though natural and proper, cannot in the exigencies of our civilization always obtain natural and proper gratification.

The second measure is a rigid and systematic regulation of prostitution. The state accepts the responsibility of guarding citizens against smallpox and cholera, but in dealing with syphilis the problem has been too complex and has hitherto baffled solution. On the one hand, inspection, segregation and regulation are difficult if not impossible to carry out; on the other hand, public sentiment, in Anglo-Saxon communities at least, is as yet bitterly opposed to this plan. While this feeling, though unreasonable, as I think, is entitled to consideration, the choice lies between two evils—licensing, even imperfectly carried out, or widespread disease and misery. If the offender bore the cross alone, I would say, forbear; but the physician behind the scenes knows that in countless instances syphilis has wrought havoc among innocent mothers and helpless infants, often entailing lifelong suffering. It

is for them he advocates protective measures|

So wrote William Osler, some thirty years ago. Innocent mothers and helpless infants are yet made to undergo the same suffering, and syphilis is creating even greater havoc among them than ever before. "Licensing" will not work effectively to reduce the suffering nor to minimize the havoc. Physicians know better than any how great is the suffering and how terrible the havoc. Surely something can be done, and surely physicians—who KNOW—will give their powerful aid to any movement which is intended to lessen the suffering and estop the havoc that syphilis creates.

OUR COUNTY SOCIETIES

McMINN COUNTY.

Dr. R. A. Brock, Secretary, reports the names of ten for enrollment as members of the McMinn County Medical Society, nine of which have paid medical defense assessments: Drs. W. J. Abel, Decatur; D. P. Brendle, Englewood; Joseph McGahhey, Niota; J. O. Nichols, Etowah; H. F. Taylor, Calhoun; W. R. Arrants, Gus Shipley, G. W. Stanton, J. R. Nankivell and R. A. Brock, Athens.

We are glad to note that Dr. J. R. Nankivell, after several years service as Major, M. C., U. S. A., has returned to his home at Athens and resumed private practice.

JEFFERSON COUNTY.

Dr. B. M. Tittsworth, Secretary of the Jefferson County Medical Society, reports apparent disaffection among the members of this Society, but states that he hopes to reawaken the former interest and report all members for 1921 before very long. The Jef-

erson County profession is composed of some mighty good material, and we hope to have every man of them enrolled before the month is out.

McNAIRY COUNTY.

Seven members for 1921 have been reported by Dr. W. W. Wallace, Secretary of the McNairy County Medical Society, as follows: Drs. H. C. Sanders, R. M. Kendrick and W. W. Wallace, Selmer; E. G. Sanders and J. G. Howell, Stantonville; E. M. Smith, Bethel Springs; W. M. Barnes, Finger.

OBION COUNTY.

The first report from Obion, made by Dr. Ira Park, Secretary, contains the names of sixteen members, as follows: Drs. J. D. Carlton, H. W. Qualls, M. A. Blanton, and Ira Park, Union City; E. A. Boswell, W. F. Roberts and Har Glover, Troy; K. R. Glenman and J. L. Roland, Obion; P. W. Prather and Swann Burrus, Woodland Mills; J. A. Howard, McConnell; L. D. Boaz, Harris; J. L. Wright, Elbridge; E. H. White, Rives; C. J. Carter, Box 624, Colorado Springs, Colo.

WARREN COUNTY.

Dr. R. L. Maloney, Secretary of the Warren County Medical Society, has reported eight members for 1921 and states that he will have two more to send in later on. Those reported to date are: Drs. E. L. Mooneyham, Rock Island; Herman Reynolds and W. F. Price, Viola; H. L. McGuire, Morrison; A. B. Ramsey, T. F. Page, A. J. Trail and R. L. Maloney, McMinnville.

LOUDON COUNTY.

Officers of the Loudon County Medical Society for 1921 are: Dr. W. T. Fonte, Lenoir City, President; Dr. G. Malcolm Scott, Lenoir City, Vice-President; Dr. J. G. Eblen, Lenoir

City, Treasurer; Dr. Halbert Robinson, Loudon, Secretary. The Secretary reports the following named members as having paid annual dues and medical defense assessments: Drs. J. T. Leeper, R. DeWitt McDonald, J. G. Eblen, T. J. Hickman, and G. Malcolm Scott, Lenoir City; J. J. Harrison and Halbert Robinson, Loudon.

LINCOLN COUNTY.

Only six members have been reported from the good old county of Lincoln. They are: Drs. T. A. Patrick, W. F. Cannon, C. L. Goodrich, and J. M. McWilliams, all of Fayetteville; W. S. Joplin, Petersburg; A. L. Sloan, Boon's Hill.

Officers of this society for 1921 are: President, Dr. W. S. Joplin; Vice-President, Dr. J. D. Bryant; Secretary-Treasurer, Dr. J. M. McWilliams.

CHESTER COUNTY.

Dr. W. C. Brown, Secretary of the Chester County Medical Society, reports a meeting of that society on February 11, at which Dr. J. D. Anderson was chosen President. Dr. J. R. Carroll, for many years a member, is very seriously ill with an incurable condition, and his name has been placed on the roll as an honorary member. Dr. Carroll is one of the best known and best loved of West Tennessee physicians, and the report of his illness will bring sadness to the many who have known him in the State Association.

HENDERSON COUNTY.

When the Henderson County report comes in it always is a good one. This year Dr. S. T. Parker, the Secretary, sends in eighteen names, as follows: Drs. W. F. Huntsman, R. H. Milam, Geo. A. Brandon, J. M. Arnold, C. H. Johnston and S. T. Parker, all of Lexington; E. G. Maxwell, Darden; J. F. Graves,

Juno; C. E. Bolen, W. I. Howell, D. W. Bradfield, all of Wildersville; J. N. Smith; Cuba Landing; J. C. Stinson, Reagen; R. L. Wylie and R. T. Keeton, Scott's Hill; J. T. Keeton and S. H. Brazelton, Sardis; J. H. England, Luray.

NOTES AND COMMENT

Dr. George R. McSwain, Paris, is serving temporarily as Assistant Surgeon at the Nashville City Hospital. Dr. McSwain's service here will extend over a period of a month or six weeks, and he will then return to his work at Paris.

Dr. J. A. Anderson, for more than thirty-five years a practicing physician in Loudon County, died at his home at Greenback on January 23, 1921.

The Chattanooga Academy of Medicine and Hamilton County Medical Society has gotten out a beautifully prepared program for the year 1921. This good society meets each week and there is something on the program for every meeting—and that's the way it should be in every medical society. During the year the Chattanooga society will have eleven contributors from other cities on its program, among them some of the most distinguished men of the American profession.

Drs. Frank D. Smythe and Frank W. Smythe have formed a partnership for the practice of surgery, with offices on the seventh floor of the Exchange Building, Memphis.

Drs. Eugene J. Johnson and Shields Abernathy, Memphis, have announced the formation of a partnership and have opened offices

on the tenth floor of the Cotton Exchange Building.

Two cases of anterior poliomyelitis have recently been reported to the State Board of Health by a consulting physician who saw them two months or more after their inception. In neither instance was the disease reported by the attending physician. Suppose an epidemic outbreak had developed from either of these cases—would the attending physician feel any blame attaching to himself for his disregard of the law?

Smallpox is nearly everywhere, but the old debate as to whether it is smallpox or not goes merrily on. It is really a pity that all those who so steadfastly refuse to diagnose smallpox because its manifestations are so often very mild in character cannot see some of the confluent cases, which are becoming more and more frequent, and which all develop from exposure to the very mild cases.

Don't forget to register the birth of that baby you delivered today or yesterday. The time may come when a birth certificate may settle most important matters in that child's life.

Vaccinate the children in the families who depend on you for medical care. There are six beautiful young ladies now in quarantine in one of our state schools marked with smallpox who need not have had their beauty marred—vaccination would have prevented it. We dare say that every one of these girls has been under the professional care of a family physician ever since birth, but none of them were vaccinated.

Drs. W. C. Bilbro, Sr. and Jr., are now located at 150 Eighth Avenue, North, Nashville.

On February 8th, the day this was written, 617 names were enrolled on the membership roll of the Tennessee State Medical Association for 1921. A number of societies had not been heard from on the date mentioned.

April 12, 13 and 14. Don't overlook those dates. The eighty-eighth annual meeting at Nashville.

BOOK REVIEWS.

KEEN'S SURGERY. Volume VII. By various writers. Edited by W. W. Keen, M. D., Emeritus Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia. 855 pages, 359 illustrations. W. B. Saunders Company, Philadelphia.

This, Volume VII of Keen's Surgery, is supplementary to the six volumes which covered the progress of surgery down to the year 1913 and was produced in order that the surgical lessons learned in the great world war might have a place in this system of surgery. Volume VIII will follow this and make Keen's work complete. The contributors to this volume are all men who write with authority on their respective subjects—Adami, Schamberg, Ashford, Dereum, Beebe, Sir William Thornburn, Sir Robert Jones, Matas and others. There is little, if anything, of importance in military surgery that has been left out of consideration by Dr. Keen and his co-workers. Among the other splendid chapters is one on "Orthopedic Surgery in Civil Life," by Dr. Robert W. Lovett, while "Military Orthopedic Surgery" is by Sir Robert Jones and Ernest W. Hey Graves. An exhaustive consideration of the problems of injuries of the vascular system is by Rudolph Matas. A chapter on "Tetanus," by Fred T. Murphy, is splendid—nothing better. Sir Cuthbert Wallace writes on "Gas Gangrene," Adami on "Inflammation," Blake on "Gunshot Fractures," Eisendrath on "Fractures," Burton

Lee on "Transfusion of Blood and Its Substitutes, and the rest of the list of contributors are men of the same general type as those named herein.

THE ROENTGEN DIAGNOSIS OF DISEASES OF THE ALIMENTARY CANAL. By Russell D. Carman, M. D., of the Mayo Clinic and Professor of Roentgenology, Graduate School of Medicine University of Minnesota. Second edition, thoroughly revised. 676 pages, with 626 original illustrations. W. B. Saunders Co., Philadelphia. Cloth; \$8.50 net.

The first edition of this work won immediate recognition as a most valuable and complete treatise on the subject. This second edition is far better because of the revision, because of important additions, and because of the fact that the whole subject matter is right up to date. A new chapter on hour-glass stomach is a splendid addition, and more than one hundred new original illustrations add very materially to the attractiveness and to the value of the book. The subject of pneumo-peritoneal diagnosis receives merited attention in a fine chapter in which Dr. Carman takes a frankly conservative stand with respect to the value of this method.

PULMONARY TUBERCULOSIS. A Handbook for Students and Practitioners. By Edward O. Otis, M. D., Professor of Pulmonary Diseases and Climatology, Tufts College Medical School, Boston. Second edition. W. M. Leonard, Publisher, Boston.

This is a very fine manual upon the subject of tuberculosis which will be found extremely helpful by any physician or student or patient with tuberculosis. The physician who reads it will have his interest in the study of tuberculosis renewed and his knowledge of the subject increased. The student will find facts presented in a way that will stimulate his desire to study and to learn all that he should

know about tuberculosis. The tuberculous patient will find information set out for him in an understandable way that will make it easier for him to observe the rules of living that must guide him in his fight for health. This edition is larger than the first edition because of the inclusion of many new case histories and a new chapter on "Examination of Soldiers for Tuberculosis."

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By James M. Anders, M. D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. Fourteenth edition. Thoroughly revised with the assistance of J. H. Musser, Jr., M. D., Associate in Medicine, University of Pennsylvania. 1284 pages; fully illustrated. W. B. Saunders Company, Philadelphia. Cloth; \$10.00.

In this, the fourteenth edition of a most popular and a standard text on medicine, is to be found a very comprehensive discussion of most, if not all, of the problems that confront the modern physician in his daily work. The revision has been very thorough, and certain abridgements have been made in the chapters on some of the better understood diseases that are wholly in keeping with the best thought of the day, while the newer knowledge that has been established has received merited consideration. Anders' Practice has won a high place in the esteem of the profession of this country, and the fourteenth edition will in no wise detract from the favor that previous editions have gained.

PSYCHOPATHOLOGY. By Edward J. Kempt, M. D., Clinical Psychiatrist to St. Elizabeth's Hospital (formerly Government Hospital for the Insane), Washington, D. C.

This work shows careful research and real work. It is pleasant and delightful reading. An honest opinion, however, forces the criticism that the author bases his line of reasoning on one idea, and allows his enthusiasm

and zealousness to influence his judgment.

U. G. D.

EXOPHTHALMIC GOITER AND ITS NON-SURGICAL TREATMENT. By Israel Bram, M. D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia. C. V. Mosby Company, St. Louis, 1920.

The lack of consideration for remedial measures which may be, and in many instances should be applied without surgical procedure that has been almost universally shown by writers on exophthalmic goiter was the determining factor which led Dr. Bram to present the book under review. It is undoubtedly true that the glamor of the more spectacular and radical treatment of goiter has almost completely overshadowed the less flamboyant method of treatment with drugs and extracts and the right kind of regulation of the life of the goiter patient. It is nevertheless true, however, that in many cases very satisfactory results can be secured without resorting to surgery. To hear the usual discussion when Graves' disease is up for consideration one who does not know better would be led to believe that nothing counts in the treatment of this condition except surgery, and that the only matter to be determined is the question as to which of the various operative techniques and types is most desirable. Dr. Bram presents evidence in favor of nonsurgical treatment that is most convincing. It is as hard for him to find any good in the surgical treatment of goiter as it is for the average surgeon to find any good in any treatment of a nonsurgical nature. He sets himself to the task of making it appear that the condition is one in which surgery is not needed except for the tumor itself, which is not the basic factor in the production of the disease. It seems that his work should serve a good purpose, even though his views should not be altogether ac-

cepted. The anatomy and physiology of the thyroid, the pathology and pathogenesis of exophthalmic goiter, the symptomatology, diagnosis and differential diagnosis, diagnostic tests, course and prognosis, and the nonsurgical treatment of the disease are discussed in various chapters. A number of case histories are then presented and the final chapter is given over to conclusions. A splendid bibliography and a fine index contribute a great deal to the work.

THE ENDOCRINES. By Samuel Wyllis Bandler, the New York Post-Graduate School and Hospital. Octavo of 486 pages. Philadelphia and London: W. B. Saunders Company. 1920. M. D., F. A. C. S., Professor of Gynecology in Cloth; \$7.00 net.

The appearance of a new book upon as important a subject as endocrinology and particularly by as well known a writer and teacher as Dr. Bandler is certain to be welcomed and received with great interest. This particular work which is unusual if anything, is devoted more especially to the author's own views as to the endocrines and their functions, and deals with the main subject from a distinctly gynecologic standpoint.

Dr. Bandler opens his topic with a plea for a more detailed study of the endocrines, especially upon a therapeutic basis with gland extracts, and then goes into his theme in considerable detail upon the basic assumption that practically everything in all of biology is due to the ductless glands; the introductory chapter contains the following: "The difference between animals of various species are due to the ductless glands. The variations between animals of the same species are due to the ductless glands. Race characteristics are produced and perpetuated by the same factors, and the differences among individuals of the same race likewise depend on endocrine activity; and resemblance in body, mind or

psyche, whether the resemblance is that of normality or abnormality, are due to like or similar relations in the activity of the endocrine." Among the concluding paragraphs of the chapter entitled, "The Balance Between the Endocrines and in Each Individual Endocrine" the following remarks occur: "As I observe, in cases now being studied, kidney diseases are the result of endocrine abnormality. Goodhart and others have made important discoveries in muscular dystrophies. . .

As to tumors, benign and malignant, they are due to endocrine action. We shall find that carcinomata are due to different endocrines according to their situation: breast, pylorus, coecum, sigmoid, uterus, etc. The neuroses and psychoses are endocrine as to cause. In a subsequent page the curative action of placental extract, for example, on pituitary psychoses and on other states due to the pituitary and other glands, will be reported. In conclusion let me make this prophecy. In five years there will be few mental defectives (new), few feeble-minded (new), few insane (new), few tumors (new), few cancers (new), few diabetes (new), few renal diseases (new), and so on. Since they are due to endocrine aberrations they will be corrected in their earliest stages by endocrines. When the next war comes, if it does at all, soldiers before going over the top will not be given alcohol; they will be given endocrine cocktails and the adrenal cortex will be an important ingredient. And if the world, in the near future administer to its diplomats, to its highest officials, to its legislators, and to its people the proper endocrines, especially anterior pituitary, and inhibits the adrenal cortex a little bit, there may be no more wars."

In addition to the material of the character quoted and based upon "suspicion" or at most on inference, the book contains a comprehensive presentation of the more established phenomena of endocrinology and urges

their more widespread study via therapeutic trials of gland extracts. A chapter of "Clinics" is included and finally a number of "Case Reports" are cited which are, however, far more reminiscent of the advertising leaflets of certain manufacturing concerns than they are suggestive of closely conducted study.

There is no bibliography nor are any references given though the names of various investigators are freely accredited as their works or views are referred to.

As a whole Dr. Bandler's new book will have a certain though restricted usefulness and if studiously consulted, will acquaint its reader with much that will be useful. D.

ADVANCED LESSONS IN PRACTICAL PHYSIOLOGY. For Students and Practitioners of Medicine. By Russell Burton-Opitz, M. D., Ph. D., Associate Professor of Physiology, Columbia University, New York City. Octavo of 238 pages, with 123 illustrations. Philadelphia and London: W. B. Saunders Company. Cloth, \$4.00.

This laboratory manual, a companion volume to the larger "Textbook of Physiology" by the same author, is a well arranged guide containing detailed directions for a systematic laboratory course in practical physiology. It is intended, by taking the place of purely explanatory lectures, to guide and assist the student in the performance of his essential laboratory exercises, and to teach the "experimental method." The selection of exercises and distribution of the work is predicated upon an allotment of 300 academic hours for the teaching of physiology, 120 hours being devoted to lectures and conferences, 180 hours to 50 laboratory lessons of three hours each and 30 single hour periods for formal demonstrations.

The book is profusely illustrated with sketches and cuts of apparatus and should be highly useful to those interested in the teaching of this increasingly important subject.

D.

Come to the Nashville Meeting

April 12, 13 and 14

Stay all Three Days

Look at the "Preliminary Program" on the
First Page of This Journal.

The General Sessions will be in the
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The Eye, Ear, Throat and Nose Sec-
tion will meet at the Tulane Hotel.

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the Y. M. C. A.

YOUR FRIENDS WILL ALL BE HERE

April 12-13-14--Three Big Days

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, under Direction of the Trustees

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SOME HISTORICAL DATA OF OUR OWN PROFESSIONAL MEN AND A BIOGRAPHICAL SKETCH OF THOMAS CRUTCHER OSBORN, M.D.

By Deering J. Roberts, M. D.,
Nashville.

MR. PRESIDENT AND GENTLEMEN:

Born, reared and educated in this Capital city of the "Volunteer State," I beg leave to trespass on your time with the following facts secured by personal experience of more than fourscore years' residence in this city and its vicinity, together with the reading of cotemporary medical literature of my own and preceding days; furthermore, recognizing the fact that the medical men of this great nation have held their own with the best, the ablest and the most progressive of any civilized and enlightened nationality in statecraft, humanity, original observation and brilliant attainment in our beloved art and science.

With the birth of these United States we find the name of that grand old American physician, Benjamin Rush, affixed to that time-honored document that has made the fourth day of July ever memorable and his name and that of his fifty-five associates more than ever illustrious. From that good day to the present do we find the names of our professional predecessors and colleagues prominent in medical, municipal, state and national affairs.

One of the earliest pioneer practitioners of medicine to traverse these hills and dales was Dr. Jas. White, for whom White's Creek and White's Bend were named. He represented

this then territorial district in the United States Congress in 1794, and was succeeded by Andrew Jackson as its first representative after it had become a State in 1796.

Dr. White moved to Louisiana in 1799, became a Judge in Attakapas Parish, and died in 1809. He was the father of Edward Douglas White, who was a congressman for five terms from Louisiana, and Governor of that State from 1835 to 1839; the present Chief-Justice of the U. S. Supreme Court, Edward Douglas White, being his grandson, and the great grandson of Dr. Jas. White.

Especially in medical matters and affairs American doctors have ever been in the van. In that great boon to humanity due to the observation of Edward Jenner, our forefathers in this state were early advocates, and Thomas Jefferson, while Chief Magistrate of the United States, caused some vaccine virus to be sent to our State Medical Society, resulting in the following resolution of Dr. Ferdinand Smith, an ex-president, which was adopted, viz:—

"Resolved, That the president distribute the vaccine matter to some individual in Nashville, Franklin, Clarksville, Columbia and Murfreesboro, from these points to be again distributed by the receiver."

To Dr. Crawford Long, of Georgia, justly belongs the priority of anesthesia. Samuel D. Gross, J. Marion Simms, Senn, McBurney, Benjamin Dudley of Kentucky; Jno. A. Wyeth, Daniel Drake, of the great interior Mississippi Valley, and many others have placed their names high on the scroll of professional eminence.

In this state Deaderick, in the astern division, was the first to remove the upper

maxilla; Paul F. Eve, the elder, had a reputation nationally and internationally on a par with Benjamin Dndley; and A. B. Buchanan, also of this city, performed the third successful hip-joint amputation in the world.

At this operation, done in the summer of 1857, I was present, and observed that the catlin passed through the thigh to make the anterior flap, hugging the bone and descending behind the great artery of the limb, the son of the operator, Dr. Thos. B. Buchanan, thrust the fingers of each hand in behind the back of the knife and grasped the flap firmly between the fingers and thumb, thus compressing the femoral before it was severed. The anterior flap completed, the operator reintroduced the knife behind the bone, making the posterior flap of the gluteal muscles, the arteries of which having been secured, the femoral was then tied, the bone disarticulated and the wound closed; thus antedating Wyeth's "skewer pins" and the artery catch forceps. High in national annals, as well as those of the "Bluff City," will be held the deeds of B. W. Avent, Dudley Saunders, G. B. Thornton and their heroic colleagues.

The organization of the Tennessee State Medical Association antedated that of the American Medical Association by five years; and Drs. Robert Martin, W. A. Cheatham and G. A. J. Mayfield were the delegates sent from this city to participate in the convention that organized the National Association. Four doctors of Nashville were elected and presided over the annual meetings of the A. M. A., Drs. Paul F. Eve, W. K. Bowling, W. T. Briggs and John A. Witherspoon, and Dr. Duncan Eve was elected first vice-president and presided over one annual meeting, the president of that annual meeting having been absent on account of ill health. The records of the National Association as well as those of the State, counties, municipalities, sections and specialities, together with the periodical and more pretentious literature of the times contain many valuable papers, essays and practical observations and contributions to a most progressive art and science.

However, I must not overtax your patience with these historical data, to which manifold and valuable additions may be made, yet I cannot forego the brief citation of the invaluable

work of Wm. C. Gorgas, born in Alabama, obtaining his literary education at the University of the South, located at Sewanee, Tenn., who banished "Yellow Jack" from this continent and materially manacled the powers of its ubiquitous and almost omnipresent ally, malaria.

Among the sons of Tennessee, I desire to place before you some life data of one of modest and unassuming mien, beloved and most highly esteemed by colleagues, clientele, and by all with whom he came in contact and wherever known, as an earnest, laborious and persevering student; a close and intelligent observer; practical and sincere in his work in behalf of humanity; for which I am indebted to an article in my journal, "The Southern Practitioner" (Vol. XXIII, p. 9), furnished by Dr. Samuel H. Stout, also Nashville-born, and who obtained a most enviable reputation as Medical Director of Hospitals of the Army of Tennessee in 1861-1865.

Thomas Crutcher Osborn, M. D., was born at Nashville, Tenn., May 4, 1818. Dr. Felix Robertson was in attendance at his birth, as he was at mine something over twenty years later. Dr. Robertson was the first male white child born where this city stands, his father, Gen. James Robertson, being the founder of Nashville. Dr. Osborn's father was Alfred Mariott Osborn, who was a native of Bambury, Oxfordshire, England; he was the son of Job Osborn, of that place.

Dr. Thos. Osborn's mother was a beautiful daughter of Anthony Crutcher, who was one of the pioneer settlers of this section; he fought the Indians and established a home near White's Creek, in Davidson County. He married Miss Elizabeth Curtis, related to the noted Childress family of Middle Tennessee. Dr. Osborn was named for his great-uncle, Thos. Crutcher, for many years State Treasurer of Tennessee, noted for his interest in female education; one of the original stockholders of the Nashville Female Academy, in 1816, and was never married. Another great-uncle of Dr. Osborn was Edmund Crutcher, who lived in the Brown's Creek neighborhood, and was a planter. He married a daughter of Robert C. Foster, Sr., a prominent and useful citizen of his day, the father of Hon. Ephraim H. Foster, Robert C. Jr., James,

Thomas, Washington and B. Frank Foster. Foster Crutcher was a son of Edmund Crutcher; one of his daughters married Dr. D. W. Yandell, and another Gen. Geo. W. Maney.

Dr. Osborn's first experience in school was as a pupil of a Prof. Clanton, who taught the first and only school on the Lancasterian plan in the Mississippi valley; it was known as the monitorial system, and at first was widely popular. Clanton was an Englishman, and was attracted to Nashville, because early in the Nineteenth Century, it was then regarded as the educational centre of the Mississippi Valley.

Arriving at the age of twelve, young Osborn was delicate—feeble of muscle and digestion, and by the advice of his family physicians, Drs. Felix Robertson and John Waters, his father was induced to leave town and place his delicate son at the handles of the plow, at least for a season as a possible means of developing normal growth and thereby lengthening his days. His father bought a farm on Sugg's Creek, in Williamson County.

A plow with low handles was prepared to suit his stature, and behind this plow he was required to keep up with a big negro man, during the whole cropping season. The result was that he grew to be a vigorous, healthy boy of thirteen, and later was sent to the "old-field-school." At the age of eighteen he began the study of medicine under Dr. W. T. Eatherly, and in the winter of 1839 and 1840, he attended a course of medical lectures. Returning home at the close of his first session, he began practice with his preceptor, Dr. Eatherly, as his partner, and who died the following August. This threw upon the neophyte a large and exacting work in an epidemic of malarial fever. A close observer, he was early impressed with the conviction that it was his life-work to discover some unmistakable footprints of malarial poison to whose insidious potency so many valuable lives were yielded. Noting in all cases of malaria the manifestations on the tongue of a smooth margin and transverse pectinated edges, an account of this he published in 1851 in "The Western Medical Recorder," he then

residing in Alabama. The editor of that journal crediting him as "one of the closest observers in the profession."

Dr. Osborn commenced the practice of medicine under a license from the Board of Censors of the State Medical Society in accordance with the laws of the State at that time. Medical schools were then few and far between, and a large number of reputable and accomplished practitioners of that day were not graduates. It was more customary to ask a practitioner then under whom he had studied, than from what school he obtained his degree. In many localities of the then sparsely settled Southwest, quite a number of learned, popular and skillful physicians were accustomed to take into their offices young men qualified by previous education to study medicine under their instruction; a fee, usually \$150, being charged therefor. In return for this, the student was taught what to study and at intervals examined and orally instructed. He studied systematically, was early taught to dispense medicines, to extract teeth, to bleed, cup, bandage, and to discharge the duties of assistant; to dress wounds, adjust fracture apparatus, and often to sit up all night with a critical case, to insure the carrying out of his preceptor's directions.

In those days it was not required, nor for some years later, that an applicant for a commission in the medical service of the Army or Navy should be a graduate in medicine; each applicant, however, was rigidly examined by a board of surgeons appointed by the Secretary of War or the Secretary of the Navy; but in more recent days, since the development of more medical schools, many students now matriculate before having read a medical text-book, or ever having been instructed in the rudiments of medical science by a private instructor. Whether this is for the betterment of the profession is questioned.

That Dr. Osborn was an earnest student, and had been greatly benefited by the private instruction of his preceptor and a single course of lectures is proven by the fact that immediately on his return from the medical school, his preceptor offered him a partnership, which was terminated by the death of Dr. Eatherly, and Dr. Osborn was cordially

accepted as his worthy successor by the patrons of the firm; the epidemic of malarial fever at once offered him the opportunity of a large, laborious and paying practice, he fully acquitting himself to the satisfaction of his clientele.

The modern graduate may possibly marvel at the success of a physician of such meager opportunities; but when it is remembered that his intimate association in the office, and frequently in the rounds of practice, at the bedside with his able and experienced preceptor, and the study of practical anatomy in a private dissecting room, (mayhap in a log cabin in the recesses of the forest), which was sedulously practiced, the wonder ceases. A year and a half or two years of study and instruction under such a private preceptor as was Dr. Eatherly, was worth more to the student than a full course of lectures in a crowded medical school.

The removal of the Indian tribes—the Creeks, Choctaws, Cherokees and Chickasaws—to west of the Mississippi River, opened up vast areas of fertile lands in Alabama, Mississippi and the western district of this State. They offered opportunities to the scions of the early settlers of Kentucky and Tennessee to secure cheap homes, to make fortunes in planting the three great staples of the Southland, cotton, corn and sugar; to make name and fame in educational and professional practice; to render themselves useful as statesmen in commonwealth building, and to enhance the happiness of themselves and families in their several spheres of usefulness and influence by aiding in founding social, educational and religious institutions.

Inspired by the example of the pioneers who at Wantanga, Nashville, and Harrodsburg voluntarily entered into compacts of self-government, and thus prepared the way for the foundation of the two free commonwealths of Tennessee and Kentucky, the grand children of those early pioneers and their associates, by hundreds and by thousands, were not slow in availing themselves of the opportunities in their easy reach, consequent on the removal of the Indians. A large emigration from Middle Tennessee to

the new unsettled sections occurred between 1835 and 1845. From Nashville and the country adjacent a large number of farmers, merchants and educated young professional men emigrated to seek their fortunes in the regions then newly opened up to settlement.

Dr. Osborn began the practice of medicine in 1840, the year in which I was born. Three years later, impelled by his pioneer spirit he decided to remove to Alabama. He accordingly mounted his horse and made his journey thither. His horse having become sick, he stopped at Lacey's Springs at the foot of Sand Mountain and there did a paying practice for two years. He then moved to Erie, Greene County, Ala., on the Warrior River. There he remained eight years and collected all of his fees, amounting in the aggregate to \$20,000, excepting the small amount of \$350.

Three of his children having attained school age he moved to Greensboro, the county seat, to secure for them the better educational facilities existing there. In 1872 he was attacked with a mild form of hemiplegia, due probably to malarial toxemia and overwork, from which he did not recover until after his emigrating to Louisiana in 1879. The trouble originating in the peripheral nerves and not involving the nerve centers, there was no perceptible mental failure. Calls on him in his office for professional services did not abate, but rather increased; his mind being clear and active.

He emigrated to Louisiana determined never again to practice medicine; engaging in farming, taking an active part in all the labors incident thereto, resulting in a complete recovery from his paralysis. Though protesting that he did not desire to practice, patients forced their cases upon his attention; pleading for advice they came to him for many miles around, willingly paying fees from five to twenty-five dollars for advice and prescription. Recovering his health, in 1882 following the March of Empire, he moved to Cleburne, Texas, where he at once entered upon a large and successful practice, from which the physical infirmities of age compelled him to retire, as he neared his fourscore years.

January 9, 1845, Dr. Osborn married Miss

Harriet Charles McClellan, of Morgan County, Ala. To them were born four boys and four girls, of whom five are still living—two sons and three daughters. Mrs. Osborn died July 18, 1888.

Dr. Osborn had always been an ardent, industrious and systematic student, as well as a faithful, close and conscientious observer. For many years he kept records of meteorological observations. He also kept an "Index Rerum," whereby he was able to refer to topics of interest scattered through medical textbooks and journals. His contributions to medical literature are found in many medical journals published during the active period of his long and well spent life.

Among the contributions may be noted some of the most original and valuable ones, viz.: In Vol. II, page 237, new series Western Medical and Surgical Journal, "Report of a Case of Ascites Caused by Peritonitis, Which After Three Tappings was Cured in a Week by Ten Drop Doses of Tincture of Iodine." Same journal, page 202, third series, "Notice of Gallium Tincturum in Acute Dysentery." "Peculiar Appearance of the Tongue in Malarial Infection," republished in Transactions of American Medical Association, 1869, from Western Medical and Surgical Journal, Vol. 8, page 109, third series; same journal, Vol. 6, page 7 (1850), "Singular Case of Pregnancy at Full Term—Death of Foetus." In the New Orleans Medical Journal many of his papers appeared; among them, "A New Application of Nicotianum Tabacum," Vol. 19, page 308, 1866. "A Neuralgic Pill," and "A Fracture of the Femur," "A Case of Puerperal Eclampsia," and the "Successful Use of Morphia Hypodermatically in Alabama in 1868." "Report of Ten Cases of Malarial Hemorrhagic Fever," in October number, 1888. These are only a few of his contributions to medical science. He was always a most welcome contributor to the medical journals of the Southwest, because always truthful and original. Of all his contributions to medical progress Dr. Osborn and all who have tried it, consider his original suggestion concerning "The Prophylaxis and Abortion of Smallpox by the Use of a Solution of Bichloride of Mercury, Externally,"

as the most valuable, as well as his "Report of Three Cases of Carbuncle Aborted by Medical Instead of Surgical Means," published in the Texas Medical Journal, December, 1896. Dr. Osborn's treatment of smallpox, based upon a rational conviction, reached after careful observation, is original with him. His theory was that "the contagium or germ first attacks the skin, and is it not probable that the condition of the blood as well as other secretions, excretions and tissues are due to the toxins developed by the impaired condition of this great emunctory; the specific germ toxins manifesting their effects first on the skin, and secondarily, elsewhere? Furthermore, is not this demonstrated by the lethal action of the bi-chloride on germ life, especially when applied "primo et origine mali?" When he first published in the Texas Sanitarian, May number, 1894, the successful result of the case of John Dodson, aged 64, who after his exposure to smallpox, developed the following symptoms, viz:—"flushed with fever, irritated eyes, sore throat, swollen lips, and a vivid redness covering the head, neck and chest down to the nipple line and a general bad feeling all over his body and in his mind," his statement was received with some degree of doubt; but other citations, in the Southern Practitioner, Vol. XX, 1900, and in other journals, together with the experience of other reliable and skillful physicians, may it not be regarded as "res adjudica?"

Dr. Osborn's name is recorded in the Transactions of the Tennessee State Medical Society in 1841, four-score years ago. He was President of the Greensboro, Ala., Medical Society for a number of years, honorary member of the same in 1852; honorary member of the Texas State Medical Society in 1885; honorary member of the Atlanta, Ga., Academy of Medicine; honorary member of the Mobile, Ala., Pathological Society; member of the American Medical Association in 1869, and subsequently; President of the Lincoln Parrish, La., Medical Society, and President of the Johnson County, Texas, Medical Society.

As stated, he first saw the light in Nashville; inheriting from an honorable and enter-

prising ancestry individuality, originality, a desire to explore the domain of the vast unknown, and a most laudable and enviable ambition to promote the upward progress and happiness of the human race.

He has often been heard to say "that when a boy, as he walked the streets of his native city, it seemed to him that every adult and aged person he met with had achieved something, or was about to achieve something, or was earnestly seeking opportunities to achieve something for the betterment of mankind." Doubtless this impression all through life inspired his thoughts and ambitions.

He went to his well earned reward August 9, 1902, in Cleburne, Texas, aged 84 years, 3 months and 10 days. Quietly folding his hands and straightening out his body he died apparently without a struggle or a pain. Not at all sick, just worn out! His last work in medical lines was in active service to his dearly beloved profession as secretary of his home medical society, and his minutes showed great care and were of much interest to his fellow associates. His sincere wishes were always for the honor and benefit of his profession and his discovery of the cure and prevention of smallpox he regarded as his greatest achievement; serving out his days in efforts of humanity, never losing sight of the poor, the needy, the unsanitary, as if his future was sufficient and his services were gladly given to aid his fellowman.

His immediate descendants now living are as follows, viz:—Dr. Jas. D. Osborn, with four children, now living in Cleburne, Texas; Mr. Thos. H. Osborn, with one child, a leading merchant of Cleburne; Mrs. Carrie Taylor, with two children, of Dallas, Texas; Mrs. Laura O. Mason, with four children, of Ft. Worth, Texas; and Miss Ethel Osborn, of Cleburne, unmarried, and living with her brothers, who in caring for her are trying to repay in some slight degree her unremitting and devoted care of their father in his declining years.

Dr. Jas. D. Osborn, of Cleburne, Texas, then but "a broth of a boy," served as a gallant cavalryman in the "war between the states." He was wounded severely in the arm at the fated battle of Franklin, but man-

aged to get south of the Tennessee River with the shattered fragment of Hood's battered battalions on their retreat following the battle of Nashville. He is one of the leading physicians of Cleburne, Texas. Some 20 years ago he was President of the Texas State Medical Association and was appointed my successor, as Surgeon-General of the United Confederate Veterans, by the commander-in-chief, I having declined reappointment, after holding the position for three consecutive years.

And now, gentlemen, hoping that I have not overtaxed your patience with this cursory statement of some facts of our predecessors in the highways and by-ways of the grand and ennobling art and science which you profess, and which are well worthy of your emulation, may I not commend them especially to you of a later and more advanced generation? It has ever been my most earnest and sincere desire to incite my junior colleagues to a wholesouled, continuous, sincere and devoted love and esteem for that science and art which so ennoble the heart and elevates the mind of man. Place love for your Maker first in your hearts; next love for your family; and then love for your profession—Aye, even before love for your country, for a true Doctor of Medicine will ever be a true patriot.

Permit me to say that the only member of our profession who is contented with his knowledge of medicine, and who considers it a well rounded and thoroughly developed science, is the medical graduate when he receives his diploma. He has studied well his text-books, and listened faithfully to what has come to him from the lecture rostrum; diligently observed many facts that have been placed before him in laboratory and clinic room; he has passed his examinations and fulfilled the requirements of his Alma Mater—yet, all that is but the beginning; aye, the Commencement!

To succeed, he must attain an interest in the investigative side of medicine, and acquire an interest in the many problems of life, disease and death; the keys to which are close observation and perseverance, with sincere devotion. Important and valuable addi-

tions to our knowledge are not due alone to those with intensive and extensive college, hospital and laboratory training; but rather to the alert, devoted and independent mind unwilling to accept tradition in lieu of known facts. The progress of the ages is increasing rather than diminishing the problems that face us today. Never before were the problems of medicine so numerous, so diversified and appealing to those of an inquisitive turn of mind and a true interest in humanity; the reward attainable and inevitable being success.

Think of the problems yet demanding solution! Cancer, influenza, pneumonia, the arthritides, chronic hypertension, pernicious anemia, leukemia, pseudo-leukemia, etc.; of some of which some of the facts have been observed and are indelibly inscribed in printer's ink on the printed page; while others are still staring us in the face with imperative demand, but with promise of high award for their solution.

The Hippocratic Oath adjures us "To impart our knowledge" to others "by precept, lecture or any other method," thus differentiating regular medicine from its antithesis; the one having humanity for its inspiration, the other, self.

Organization and regular attendance on medical meetings; taking part therein, offer the best means of compliance—thus benefiting not only others but yourselves. Look over the names of those standing highest in eminence and renown! Can you find one of to-day, yesterday, or in the dim and distant past that was not connected with the medical organizations of his day; or did not place his name on the literature of his day?

As a medical student I was present at the meeting of the A. M. A., in this city in 1857; a member of my college society in 1858, 1859 and 1860; a member of my Division Medical Society during the "War between the States;" and a member of one or more medical organizations every year for more than a half century. I have obtained many important and valuable facts that I would otherwise have painfully and regretfully missed.

No man has ever written a paper or essay on any medical subject for his medical so-

ciety, or for any other method of publicity that he did not know more about that subject than he ever knew before.

THE MANAGEMENT OF THE SUMMER DIARRHEAS

Borden S. Veeder, M. D.

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Consulting Pediatrician to St. Louis Children's Hospital, City, and Isolation Hospitals, St. Louis.

"Summer diarrhea" is the name given to a group of acute intestinal conditions in infants characterized by more or less profuse watery and mucous evacuations, and with an etiology which is decidedly complex and obscure. Although the group includes a number of conditions with seemingly different specific etiological factors, as yet no satisfactory etiological, pathological, nor clinical classification has been devised. This makes for difficulty and confusion, as many an unnecessary controversy has been waged between men who have been discussing quite different subjects. In this group are included a wide variety of more or less synonymous conditions as gastro-intestinal intoxication, gastro-enteritis, alimentary intoxication (Finkelstein), toxicosis (Czerny), cholera infantum, enterocolitis, and infectious diarrhea. No attempt will be made to subdivide the group in this paper; as for the discussion of treatment and prevention they may be grouped together.

Before discussing the management of these conditions, it is essential to have an idea of the general etiological factors involved in the production of the diarrhea. Without burdening you with figures, they may be stated briefly:

1. Although the conditions occur throughout all seasons of the year, they are most serious and reach their greatest incidence during the hot summer months.

2. They are far more frequent in the hot-

ble-fed infants than in the breast fed.

3. Among the artificially fed infants they occur more frequently in those fed upon proprietary foods with a high carbohydrate content than in infants fed upon ordinary milk dilutions.

4. They are more frequent in infants whose nutritional condition is below par as the result of previous acute nutritional disturbances or of infection, and are more serious when thus superimposed.

5. They are more frequent in infants living where there is a lower density of population. Closely allied with this last is the question of housing, economic conditions, nationality of parents, etc.

These are important factors as they determine the preventive measures which are most important in the management of these or any other diseases. While there is no definite etiological factor for the group, undoubtedly a specific infection occurs in a certain percentage of cases. Now and then an infection with one of the dysentery organisms is found and at times this may occur in almost epidemic form, and there is also evidence that certain streptococcic diarrheas occur. In the East I have seen many cases of actual bacterial infection, with ulceration of the intestine at autopsy, while in St. Louis during the last nine years these cases have been exceedingly uncommon. Some men, working in cities or countries where actual bacterial infections are apparently uncommon, consider that the specific factor in most of these diarrheal conditions is a metabolic disturbance leading to the absorption of toxic products (as yet not isolated) derived from the food. Some consider these toxic products to be the result of abnormal chemical changes in the food occurring in the process of digestion in the intestine, and others that they are the result of the action of pathogenic or abnormal bacteria upon the food before it is ingested. Clinically the picture presented may vary from a mild intestinal upset with one or two or more semi-liquid stools to a far more serious toxic condition with high fever, marked dehydration, acidosis and cerebral symptoms. There may be a stormy onset with violent vomiting and purging, symptoms

very similar to some of the types of acute poisonings, or the toxic picture may be gradual in development progressing steadily from a mild form until the more serious picture is reached. Leaving aside the question of etiology, Marriott, in our Department of Pediatrics at Washington University, has been making some very interesting and important studies of the pathological physiology of infants with these severe diarrheal conditions. He has found that in the severe diarrheas there is considerable concentration of the blood with an increase in the amount of blood protein which may reach 50 per cent. Further, by the Stewart method, that there is a lessening of the flow of blood. For example, in some of these infants who should have a normal flow of from 15 to 20 c.c. of blood per 100 c.c. of arm per minute, it has been found reduced to as low as 3 or 4 c.c. With this slowing of the blood flow and increase of the blood concentration, a compensatory constriction of the arterioles occurs to maintain blood pressure and the blood count of the capillary blood is much greater than that of the venous. This slowing of the blood flow leads to an accumulation of acid products in the blood which brings about the clinical picture of acidosis—the deep, pauseless breathing—seen so frequently in toxic diarrheal cases. Other phenomena besides these, as the appearance of albumen and occasionally sugar in the urine, are well known. Marriott believes that the dehydration which occurs as a result of the loss of water with the severe diarrhea is responsible for all of these phenomena and for the picture of toxemia which presents itself clinically. Further, that the water loss affords a satisfactory explanation for the fever which occurs in these cases and which may be very high. This is, of course, an assumption, and while dehydration is a most important factor it would seem to me better to regard it as but one of the factors in a complicated pathological picture. It does not seem logical to ignore the toxemia arising from the original condition which produced the diarrhea, whether this toxemia be due to the action of specific micro-organisms or the absorption of toxic products from the blood upon which the German school has laid

particular emphasis. Of course in the frank type of bacterial infection there is no question as to the importance of the toxemia, but in a majority of the cases of summer diarrhea there is no evidence of specific bacterial infection. We know very well the toxic picture with fever, depression, etc., arising as a result of the action of bacterial or other toxins in conditions in which there is no diarrhea associated. While the severe water loss leads to these pathological phenomena which I have mentioned, and a complete lowering of the normal metabolism of the cells occurs as the result of the impoverished circulation, these are only secondary or resultant from the primary factor which produced the water loss. Marriott's work has brought forcibly to our attention the great importance from the therapeutic standpoint of the dehydration which takes place, and by concentrating our attention upon what actually takes place in these severe diarrheal conditions, rather than stressing the more or less theoretical ideas of the importance of the food changes and the absorption of toxic products from food in the etiology of the condition, his work has been of great service.

Considering first of all the preventive treatment: Because of the frequency of these conditions during the summer months, a great deal has been written for and against the role of heat. Although we know that in some way heat must be important, there is no specific evidence of its being more than indirectly a factor. In adults we know the depressing effect upon the body of the continued heat of the long summer months, and excessive heat by interfering with the normal mechanism of the heat regulating processes of the body will affect the general well-being of the infant. We cannot remove all of the infants in the heated areas to a cooler climate for purposes of prophylaxis, and so all that we can do is to see that on hot days the infant is kept as cool as possible by elimination of practically all clothing, and we can compensate for the excessive elimination of water which takes place by giving the infant plenty of cool water to drink. The importance of

air in motion during the hot weather has been clearly demonstrated by the physiologists.

Our most important clue in the direction of prevention lies in the marked increase in these conditions among the artificially fed infants. There has been nothing of so much satisfaction to the pediatrician who has been interested in public health as the distinct change in the attitude of women toward nursing their babies which has taken place within the last ten or twelve years. The educational propaganda which has been carried on through newspapers, journals, lectures, and the education of the mother by the physician and nurse has given splendid results. As we have a new generation of mothers to deal with every year, so to speak, it is not a propaganda which can be relaxed but must be continued. In St. Louis we find that approximately 75 per cent of our infants are breast-fed, throughout the first six months at least, which is a decided increase over the figures which I have been able to obtain for some twelve years ago. Further, there is another 10 per cent who are upon mixed feeding. Breast feeding is the most important factor in lowering the incidence of the summer diarrheas. Closely related to this is the question of the general nutrition of the infant. We know that by far the greater majority of the infants with nutritional disturbance are infants who have been fed upon the bottle rather than the breast. In a very large percentage of the infants coming into our hospital the acute picture is grafted upon a picture of chronic nutritional disturbance. The prevention of this is breast feeding and the proper feeding of the bottle-fed infant. One day last summer, about the first of August, I suddenly realized that in the Children's Hospital, which receives a large percentage of the sick infants in St. Louis, we did not have a single case of acute diarrheal disease, although it was mid-summer. While this condition lasted but a few days it was nevertheless striking. I attribute this entirely to two facts. First, 75 per cent of the babies in St. Louis are fed upon the breast. Of the 25 per cent on artificial foods less than 10 per cent are upon proprietary foods, condensed milk, etc., and of the babies re-

ceiving modified cow's milk by far the majority are on very simple dilutions, and almost without exception in St. Louis we make it a routine to boil the cow's milk before it is given to the infant. These very simple measures have been responsible for almost wiping out the summer diarrheas of infancy. This has been the chief factor in reducing our infant mortality rate from over 125 to approximately 75 within the last ten years.

At the onset of a diarrhea it is sometimes difficult, and often impossible, to determine whether we are dealing with a mild gastrointestinal upset which will rapidly return to normal or if an actual infection of the intestinal tract has taken place; whether the upset will gradually pass over to the toxic form or whether the toxic manifestations will develop in the course of a few hours. Our treatment at the outset, therefore, must be general and directed to the control of the various symptoms as they appear and toward the prevention of the development of the mild into the toxic forms, and the avoidance, if possible, of a sequential chronic nutritional disturbance. This brings us to the management of the summer diarrheas once they have developed.

DIARRHOEA. Although diarrhoea may be regarded to a certain extent as a protective measure for the purpose of ridding the intestine of some irritant, if it persists it leads rapidly to dehydration with the sequelae outlined above. If I see an infant with diarrhea early, at the very onset, it is my experience that a good generous dose of castor oil will in a large number of cases go a long way toward ridding the intestine of the irritant and preventing the further course of the disease. In a case seen after 24 to 36 hours of purging, it is very questionable as to whether catharsis will not do more harm than good to an infant whose water loss through the intestine is already high, and after 36 to 48 hours of diarrhea I believe it is contraindicated. As these cases are rarely ever admitted to hospital until some 36 to 48 hours after the onset, I almost never use a cathartic in hospital practice. Many men have waged violently against catharsis—most of them

basing their opinion upon hospital experience. It is one of those differences of opinion which results from seeing a disease under different conditions, with both sides having an excellent basis for their point of view.

Of more importance, perhaps, is early starvation—not late starvation—and again I must emphasize the difference in the cases seen early in the home from the cases seen late in the hospital wards. An early cathartic together with the withdrawal of food for 24 hours—and this is about the maximum period of starvation for a young infant—will as a rule not only check the mild cases, but also bring many of the more severe toxic types under control. Boiled water must be given frequently during this period of starvation, at least every two to three hours. At times it is necessary to sweeten the water with a little saccharin, $\frac{1}{2}$ grain to a pint. Dilute tea sweetened with saccharin has been used by many who follow the German school of pediatricians. Although I used it for several years I have never seen any particular advantage from its use nor has it seemed to me to be taken better by the infant, and in the last year or two I have given up its use for plain boiled water. When the infant has cleared out its intestinal tract by purging, with or without the help of a cathartic, and there has been a withdrawal of food for 24 hours, the diarrhea can no longer be looked upon as a protective mechanism on the part of the infant, but if it persists it leads only to further dehydration. I believe, therefore, it is essential to check the water loss and it is my practice to use opiates if the diarrhea persists. Paregoric is perhaps the best form to use and I frequently combine this with bismuth suspended in chalk mixture as a vehicle. Of course in those cases with only a few semi-liquid stools the starvation and early catharsis is usually sufficient and no further medicinal treatment is necessary. Parenthetically I might say that it is my feeling that the danger of opiates in childhood is overestimated and in practice I use them much more frequently than would perhaps be considered good practice if "text book treatment" is routinely followed.

As stated above starvation should be

limited to 24 hours in the young infant with a possible 36 hours in the older robust infant of a year or more. In the young infant with an acute upset superimposed upon a chronic nutritional disturbance prolonged starvation is exceedingly dangerous. The problem from the nutritional standpoint is to get the maximum amount of food into the infant without producing an aggravation of the intestinal disturbance. In very mild cases without vomiting and purging it is usually sufficient to cut the usual mixture which the infant has been receiving down to one-half of its strength for the 24 hour period following the starvation, and then gradually increase the amount day by day until the amount of food previously given is being taken. In the severe toxic cases it is necessary to change the entire character of the food and to give one with a low fat and carbohydrate content. Regardless of whether or not we accept the doctrine of alimentary food intoxication of Finkelstein, the "Eweiss," or "protein" milk of Finkelstein and Meyer, of which the curd or casein of milk is added to buttermilk, is perhaps the best food which has been devised for these severe cases. Starting in on the second or third day with protein milk in small quantities, say 1-2 to 2-3 to the normal volume of milk which the infant has been receiving, this may be gradually increased in quantity and as a rule without producing further diarrhea. Protein milk, however, will not do for more than a brief period with young infants without the addition of carbohydrates and this should be added gradually 1, 2, 3 per cent and so on. In many of the milder cases it is not necessary to use protein milk, but splendid results can be obtained with either skimmed or whole lactic acid milk or buttermilk. These may be soured at home or are obtainable today through the dairies in most of our cities. In St. Louis the last two or three years we have been using in the hospital and feeding clinics a large amount of buttermilk to which we have been adding commercial corn syrup for the sugar. This contains a large amount of dextrin. After the diarrhea has been checked it is often possible to run up the carbohydrate in this form to a very high pressure and thus the weight which has

been lost will be regained. Starvation, which results from the purging plus the withdrawal of food, may be very dangerous, and hence must not be prolonged. If food is not supplied to the organism the infant will burn his own tissues to furnish heat, and thus in addition to the toxic products arising from the cause of the condition plus the accumulation from the dehydration with its resulting slowing of circulation, we have added the toxic products of its own tissue breakdown, a load which the infant cannot eliminate. While many advise the use of dilute cereal preparations after a short period of starvation, I have practically given these up and follow the period of starvation with an acid milk preparation to which carbohydrate is rapidly added. It is best perhaps to use the skimmed buttermilk at first and gradually increase the fat by diluting whole lactic acid milk. Dextro-maltose preparations may be used instead of corn syrup. While in some ways, and particularly for the matter of convenience, it is wise to change over gradually to a sweet milk mixture, I have found that in actual practice the infant may be kept upon the lactic acid milk for a long time. When the change is made from the lactic acid to the sweet milk it should be done gradually—one feeding at a time—and it is usually advisable to keep a rather low fat percentage in the sweet milk. In the case of true infections diarrhea when the frequent stools persist in spite of the limitation of diet, repeated or prolonged starvation will do very little towards lessening the intestinal irritation and unless food is given the child will rapidly develop one of the forms of chronic malnutrition. I am quite sure that there has been a tendency to withdraw or withhold too much food in these cases.

While theoretically much might be expected of intestinal antiseptics, I think that practice has clearly shown that little will be obtained from their use. Perhaps some day a satisfactory antiseptic will be produced. A method of treatment which I have almost entirely discarded in the last few years, but which I used formerly, is the use of colon and rectal irrigations. It is a poorer method of getting water into the system than other

methods which I will describe, and the use of antiseptics and such theoretical soothing substances as starch I believe as a rule do more harm than good.

Acidosis: One of the most striking clinical symptoms of these toxic cases is the deep and pauseless breathing due to acidosis—air hunger as it has been so aptly described. The acidosis may often reach a severe grade. Acidosis is not due in these cases to the overproduction of acetone bodies as in diabetes, but is due to the accumulation of other substances as the acid phosphates and lactic acid. It has been suggested that the acidosis is relative due to loss of base from the body as a result of the diarrhea, but there is no actual proof of this hypothesis. The lowered flow of blood plus the increased tissue breakdown are the factors which lead to this accumulation. The degree of acidosis may be measured by determining the carbon dioxide combining power of the blood by the Van Slyke method. While the restoration of the fluid volume will itself reduce the acidosis by increasing renal activity, in many of these severe toxic cases it is essential to utilize alkali in the form of sodium bicarbonate. In mild cases 10 to 20 grains by mouth every two or three hours will help a great deal, but in the severe cases it is usually necessary to inject intravenously a solution of sodium bicarbonate. We are accustomed to using a 4 per cent solution. It is only necessary to dissolve the sodium bicarbonate in freshly distilled water at body temperature, as the bicarbonate renders the solution aseptic.

Dehydration: Every possible attempt should be made in these severe cases to limit the amount of water loss in order to prevent severe dehydration with the sequelae which Marriott has described. The early checking of the diarrhea by starvation and the use of opium, if necessary, and at the same time the giving of large quantities of water by mouth will help a great deal. Very often vomiting will be present which will prevent the ingestion of large quantities of water. In these cases it is advisable to wash out the stomach with an alkaline solution and leave plenty of water behind. If the infant vomits the fluid should be given again after the vomit-

ing has stopped and frequently large quantities will in this way be kept. In those cases which have persisted over several days and in some of the stormy acute cholera infantum types it is necessary to supply the water loss other than orally. The amount of fluid which can be taken up subcutaneously is decidedly limited. I have seen nothing more unsatisfactory than the numerous attempts I have made in the past years to get large quantities of fluid absorbed subcutaneously in these young infants. Soon the small infant's body is filled with punctures and in severe cases the absorption is often very bad. In just those cases which have the greatest need of fluid it is the most difficult to introduce quantities of fluid by this method. Next to this comes the intravenous method. This is not always an easy task in a small infant and the amount of fluid which can be introduced is limited. Either normal saline or Ringer's solution, or the 10 per cent solution of glucose, may be given. Glucose not only acts as a food but tends to bring about diaphoresis and increases the fluid volume. The easiest way of introducing fluid intravenously in an infant is by means of the superior longitudinal sinus. This is a method which is not without danger and sooner or later every one who uses the superior longitudinal sinus for intravenous work gets into trouble.

Probably the best method of introducing fluid is intraperitoneally. This method, which had its origin in the English clinic, is a far more satisfactory method than either the intravenous or subcutaneous method. It has been used very extensively in the last two or three years in the Children's Hospital at St. Louis. The fluid should be injected through a needle of from 18 to 20 gauge at a point midway between the symphysis and the umbilicus. The needle is introduced with all aseptic precautions through the belly wall at an angle. In most of these cases the abdomen is flat and the dry thin skin may be picked up between the fingers. In cases where distention is present this must first be relieved in order to prevent the possibility of a distended loop of gut being perforated. As far as I know no cases have occurred where the intestine has been injured. The best solution to inject is Ringer's solution and from two

to five hundred c.c. may be injected at a time. The fluid is usually absorbed in from four to six hours and the increase in fluid volume leads to an increase in the flow of urine and the excretion of the toxic substances which have accumulated in the blood. If the diarrhea is persistent there is of course a continual water loss at the same time and the injection may be repeated after six or seven hours if the first injection has been absorbed.

FEVER: The fever which occurs in these conditions needs no treatment, but it gives a strong indication of what is occurring. In the mild cases the fever is usually slight and usually disappears immediately on the withdrawal of food. Even in some of the severe cases this phenomenon is often noted and it is one of the bases for Finkelstein's theory of alimentary intoxication. The restoring of the blood volume will aid in reducing the temperature, but in those cases where there is an actual bacterial infection of the intestine the temperature will persist despite the withdrawal of food and the restoration of the fluids. In the temperature, therefore, we have quite a guide as to the nature of the process which is taking place. No special treatment is indicated for the changes in urine composition as the urine will become normal with restoration of normal metabolic processes.

Perhaps the gravest danger which results in those cases which do not have a fatal termination, and even with the best of treatment there is a very high mortality in the severe cases, is the passing over of the acute condition into a chronic nutritional disturbance. Even the milder acute upsets may so interfere with the metabolic functions and the normal thriving of the infant that a picture of clinical marasmus will follow, and as I have said in the first part of the paper the acute upsets are particularly prone to occur in those infants with chronic malnutrition. Thus we see we have a vicious circle which in a very large number of cases ultimately leads to the death of the infant, although we may overcome the acute infection and despite the best of treatment. Our efforts in this field then to be of any real service must be along the prophylactic lines which I have outlined. This, to reiterate a statement which has been made so

often that it almost seems trite, is breast feeding or complemental breast feeding for all infants.

CENTRAL OR INTRACAPSULAR FRACTURES OF THE NECK

By Willis C. Campbell, M. D.,
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The results obtained in central or intracapsular fractures of the neck of the femur are a reflection on the present day enlightened medical profession, which is due to the fact that the mechanical principles of fractures in this region are either ignored or not perfectly understood. There is also much difficulty in diagnosis as to the exact location unless an x-ray is obtainable, even though all classical symptoms exist.

In November, 1919, in "Annals of Surgery," I stated regarding these fractures: "It is also true that due consideration may not be given to type, anatomical location and mechanism of reduction in fractures of this region, which differ widely as to prognosis:

1. Fractures of the base of neck, intertrochanteric and below trochanter unite readily.

2. Fractures of the neck with distal fragments within the acetabulum may give good functional result without bony union—a fact well worthy of note.

3. Impacted fractures occur usually at the junction of the neck with head or trochanter—may unite by simple rest in bed or any form of support that prevents loosening of impaction.

4. Fractures of the neck proper, central or intracapsular, is the only seat where non-union occurs with a greater degree of frequency than other fractures. The reasons for non-union at this point are: first, circulation to proximal fragment is disturbed; second, intra-articular fluid retards callus formation; third, fractured surfaces widely separated by upward displacement and outward rotation of trochanter and shaft with possible interposition of muscle; fourth, weight being on transverse or oblique angle in the presence of callus.

In the personal supervision of 115 fractures

of the neck of the femur, 50 per cent were of the intracapsular variety, 40 per cent in the region of the trochanter, 3 per cent below, 7 per cent impacted. In 60 ununited fractures of this region, all were of the intracapsular type. From this we might conclude that unless an absolute diagnosis by x-ray is made and the exact location is thoroughly understood reports of cases are unscientific and unworthy of consideration. Quite frequently I am told by some physician or surgeon how excellent a result he obtained in an aged man by simple Buck's extension or other methods in common use, but upon investigation I find either the x-ray has not been made or he considers all fractures of this region in one class.

In the treatment prophylaxis is of the greatest importance. X-rays should be made at once of all hip injuries, however slight. In those over forty years of age, I have, on several occasions, had patients walk into my office with impacted fractures of the neck of the femur and fairly good function, and quite frequently strong impactions have been broken up by manipulations or active use of the limbs. Also these cases are often treated as strains or sprains until too late to expect union by simple measures.

The treatment consists of anatomical reduction as described by Whitman of New York. The limb is abducted to about forty-five degrees—moderately hyperextend and rotate inward. X-ray control in the operating room by a series of skiagrams and not the fluoroscope will indicate the desired angle. It is quite possible to overcorrect or increase the angle (coxa valga) or even to angulate in over abduction which is undoubtedly a cause of non-union or the breaking up of unorganized callus when the limb is abducted after removal of cast. In addition, I make a heavy blow over the trochanter in an effort to impact—(Cotton). A plaster cast is then applied from axilla to toes on the affected side and in fleshy individuals to the knee on the normal limb. This remains eight weeks. The position of patient is changed every two hours and the quantity of urine measured daily with frequent urinalysis. Plenty of water is

given internally. In the debilitated a special chain is required to assume the sitting posture. By this method we may expect 90 per cent of excellent functional results with solid bony union. When this does not occur by the end of eight weeks the fracture should be considered ununited and this is the condition usually found after the methods in common use.

At no other location in the skeletal system do we consider a fracture ununited at the end of eight weeks. Where this does occur radical operative treatment is the only chance of obtaining union, which consists of tunneling the neck and head of femur after reduction and inserting a strong living bone graft from the tibia. This can be accomplished in less than thirty minutes by x-ray control during the course of the operation which is not attended by appreciable loss of blood or very little if any perceptible shock. Other methods, nails, beef bone, etc., have been discarded except as a stabilizing agent for the relief of pain in debilitated individuals unsuitable for operation. The earlier the graft is done, after non-union is known to exist, the better chance there is for solid bony union. All under six months after fracture have been successful and we might expect good results up to two years. Our guide should be the conditions of the head and neck. In not one operative case has death occurred, though age is no contra-indication, as I have successfully employed the bone graft in several about the age of seventy. In selected cases these procedures should be more universally employed, as there is no condition which renders life more unbearable than an old ununited fracture of the neck of the femur.

In ununited fractures of many years duration with extreme atrophic changes in the head, I have devised a procedure which has been most efficacious in one case. The common U incision is made, the greater trochanter chiseled loose with muscular attachment. The head is then removed from socket, the end of the neck rounded with rasp or Murphy cup and a flap of fascia placed within acetabulum. The limb is then rotated inward and a point denuded on the shaft below the original attachment of trochanter.

The trochanter is then attached at this point. This step is very important as it takes up the slack in the gluteal muscles attached to the trochanter and holds the new head within the acetabulum. I have used the same procedure in old dislocations and other pathological conditions giving the same disturbance in mechanism. Where ankylosis is desired the fascia is not inserted.

In fractures about the trochanter, abduction may increase the deformity,—and it is often better in anatomical position. In this location undoubtedly Buck's extension, Hodgkin's splint, or other apparatus may give good functional result, but not in central or intracapsular fractures.

It is often stated that plaster of paris dressings in these cases are more dangerous than any other form of treatment. This is not true if the fracture is reduced and the plaster dressing is properly applied. In fact, this is by far the most comfortable method, with a mortality less than any other form of treatment. I have applied dressings in 115 fresh fractures and 31 ununited fractures, a total of 146, with only four deaths, and these in fresh fractures. This gives a mortality of less than 2 1-2 per cent, which is less than heretofore reported by any other procedure.

Of course in so short a discourse there has been no attempt to cover the subject in detail but only to point out some of the important points and the general principles involved.

In conclusion I desire to emphasize:

1. Central or intracapsular is the only location in this region which presents a real surgical problem.
2. Skiagrams should be made of all slight hip injuries, especially in the aged.
3. Plaster dressing after proper reduction gives best chance of recovery with less mortality than any other form of treatment.
4. Operative interference should be done more frequently and as early as non-union is discovered for thus the chance of a good functional limb is excellent, as well as the prevention of a large number of hopeless cripples and invalids.

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OPERATIVE TREATMENT OF FRACTURES

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In this particular field of surgery, as in most others, we in America have seen the pendulum swing back and forth between the enthusiastic Lane plate radicals and the standstillers of extreme conservatism. Up to 1905 the cutting down on a fracture was a rare event. Lane's visit in that year and his presentation of this subject to the American Medical Association made bone surgeons of us all. Unfortunately it was the idea of the steel plate, with which the fractured ends might be directly fixed, that appealed to the American imagination, and little or no attention was paid to the instrumental technique so carefully worked out by Lane, which he himself considered, and which American surgeons have had to learn is the all important item.

In the years immediately following 1905 the widespread use of the plate by surgeons who were ignorant of, or ignored, the rules of aseptic technique brought the practice of operating on fractures into general disrepute. In spite of the fact, however, that the Lane plate is no longer popular and is properly discarded, to Lane, the surgeon, we acknowledge a debt for the impetus he gave to open operations in fractures and especially for the technique, the careful observance of which is so essential to successful bone surgery.

During the past fifteen years this subject has been actively before American surgeons. There has been many experiments on animals and the opportunity for clinical observation has been great. Surely by this time there should be some unanimity of opinion as to the indications for operative interference, some standardization of methods and of armamentaria. I believe that it will be found that the practice amongst those who have really studied bone surgery is to a fair degree uniform. Always allowance must be made for the human element—the personal

equation. Some surgeons are inherently conservative, other congenitally inclined to radicalism.

1. INDICATIONS. As to certain fractures there is entire agreement that primary open operations should be done. These are fractures of the patella or olecranon and fracture dislocations, although in the latter it is the dislocation which makes open operations necessary rather than the fracture. The most frequent site of such an injury is at the shoulder joint. With a fracture of the neck of the humerus and the head displaced from the glenoid cavity it is manifestly impossible to reduce the dislocation without operation, but with the head back in its socket reduction of the fracture may be easily effected. Secondary or late operations are clearly indicated on ununited fractures or fractures with vicious union. By "vicious union" is meant where the fragments at the site of a fracture have united by bony union with marked over lapping, angulation or rotation from the normal axis, or a combination of these defects, resulting in shortening or imperfect alignment.

Aside from the instances cited above there is no general agreement among surgeons as to what fractures should be operated upon and it is hardly advisable that there should be. It is proper that each case of recent fracture of the long bone be considered individually, without any preconceived opinion as to the advisability of operation. Every effort should be made to effect such approximation of the fragments as will result in restoration of function, before an operation is considered. Scudder wisely says, "An operation is often contraindicated chiefly because it is unnecessary."

While perfect anatomical restoration is desirable it may be said that it is rarely essential to a restoration of normal function. The most notable exception to this rule is in fractures involving joints. Here accurate replacement is necessary or else excessive callus will form and interfere with normal joint motion. We would say then that in any fracture an open operation is indicated when external manipulation fails to secure such approximation of the fragments as will en-

sure a good functional result; remembering that perfect restoration of function cannot always be promised to result from operative interference.

Of course it is to be assumed that intelligent efforts are to be used in attempting reduction. We should not ignore the old fashioned teachings on the value of anesthesia, accurate knowledge of anatomical structure, manipulation, extension and counter-extension. In addition the surgeon of today has the advantage of modern appliances. It is needless to mention the great aid of the x-ray and especially its fluoroscopic use. Mechanically the greatest aid has been the fracture table, which enables us to use the principle of extension more powerfully than formerly. With the help of a fracture table, or a modern traction splint, many cases can now be successfully handled which would have been subjected to operation a few years ago. This is particularly true of fractures of the shaft of the femur.

Reference has been made to restoration of function sufficiently often to impress the opinion that this is our chief object in attempting the treatment of a fracture. If it does not seem likely that this will result from external measures the open operation must be resorted to.

2. METHODS: If an operation is to be done, then by what method? The successful outcome, whatever method may be used, will depend primarily on the avoidance of infection, which means that the most scrupulous aseptic technique must be carried out. Perfect technique means instrumental technique—nothing should come into contact with the wound except sterile instruments. A surgeon who cannot resist the impulse to put his fingers into the wound has no business doing bone surgery.

Fractures requiring operation may be placed, from the standpoint of internal fixation, into three classes:

First, those requiring the introduction of no outside material. It is frequently the case that the only obstacle to reduction lies in the interposition between the fracture ends of a piece of detached bone, or some other tissue, the removal of which permits the co-

aptation of the fragments with only such tendency to displacement as may be overcome by the proper application of a splint externally.

2. Fractures in which the tendency to displacement is very slight; where the fragments can be kept in place by suturing the periosteum, or the bone itself. The material used should be absorbable. Kangaroo tendon, or chromic gut are much preferable to wire. The third class consists of those fractures which require an internal splint—silver wire is the oldest material for direct fixation. After that came screws, nails, pegs, of bone and ivory, circular bands and most frequently used of all, the Lane plate. It would be a waste of time to discuss these different materials. It is enough to say that there exists a prejudice, which is yearly growing more fixed, against burying non-absorbable material in bone.

The conviction is now fairly definitely fixed that the only material for direct fixation of fractures requiring internal splinting is the autogenous bone graft. Some prefer to use this in the form of an intramedullary plug, while others get equally as good results with the sliding transplant. In fresh fractures the latter would be preferred in almost all cases. In ununited fractures in the leg or forearm it usually suffices, while in non-union of the humerus and femur the dowel peg gives firmer fixation and would be the method of choice. There should always be some definite reason for using the intramedullary plug, since it requires the wounding of another part. The repeated demonstration of the success of bone grafting in practice makes it difficult to understand why a surgeon will introduce any foreign material into the site of a fractured bone.

The principles as often and so clearly emphasized by Murphy should be observed, namely, the contacting with living bone between parts, containing or capable of transmitting osteoblasts. McEwen found conclusively that the periosteum possesses no power of osteogenesis, and my own experience is that its presence or absence in the graft makes little difference, except that we deliberately choose to strip it from an in-

tramedullary plug. If proper contacting has been secured the only other requisite for almost certain success is absolute fixation during the period of regeneration. This requirement is most surely obtained by the application of a plaster cast, made always to include at least the two joints at the extremities of the bone operated on.

3. INSTRUMENTS: As to the special instruments required in doing this character of work little need be said, except that it should not be undertaken until the surgeon has equipped himself with the proper tools for good workmanship. The cabinet maker would hardly produce an artistic object to delight the eye if he tackled the job with the hammer and saw of the ordinary carpenter. Good bone holding forceps, skids, fine chisels and especially a motor with saw and other attachments are essential for the facile performance of these operations.

An attempt has been made in the foregoing pages to outline as succinctly as possible the principles which should govern in the treatment of closed fractures. Nothing which has been said should be construed as referring to compound fractures, which is a subject which demands much more extensive consideration than it will be possible to give it here.

We can safely lay down an universal rule that it is unwise to attempt to apply any form of internal splint to the fragments in a compound fracture as a primary procedure. Convert the fracture into a simple one by allowing the wounded soft parts to heal and if an operation on the bone is needed it can then be undertaken. Where the wound of the soft tissues is not extensive, as in many perforating gunshot wounds of a limb, or where the tissues are torn and a slight rent in the skin is made by a projecting small spicula of bone the wound can be sterilized and we usually have a simple fracture from the outset. Where there is severe laceration of the tissues and the presence of a large wound we cannot do better than follow the oft repeated teachings of Murphy, which so nearly coincide with the essential principle in the treatment of modern war wounds—*debridement*. In civil life the case will probably be

seen early enough to permit of sterilization of the wound by excision of all contaminated and devitalized tissue and primary closure. In any event no bone grafting or direct fixation of fragments by any other method should be attempted until complete healing of the wound.

If there has been infection the delay will be greater, and if this has been streptococcic one should be very chary about reopening the wound for the purpose of operating on the fracture. There will be great risk of reinfection if anything is attempted until after a lapse of six months after complete healing. While discussing this variety of injury attention must be called to the advantages of the suspension method of treatment, the wounded limbs being placed in traction splints, the great value of which was so often demonstrated during the war.

SUMMARY—The first and all-important requisite for successful bone surgery is to insist on perfect asepsis and to acquire facility in instrumental technique. The only fractures always requiring operation are fractures of the patella, olecranon, fracture dislocations and ununited fractures. In other fractures a thorough attempt should be made to effect reductions by external measures and open operation considered only when such attempt fails to obtain such approximation as would result in restoration of function.

When it is necessary to cut down on a fracture leave in the wound as little material from the outside as possible and let that be absorbable. When an internal splint is required autogenous bone is preferred. In treating compound fractures always allow the wound of the soft tissues to heal before attempting any operative procedure on the fragments.

GANGRENOUS TONSILLITIS WITH THE REPORT OF TWO CASES.*

By O. DULANEY, M.D., Dyersburg.

Case I—H. L. B., male, age 21, referred to me June 2, 1919, by S. T. Yeattes, Mengle-

wood, Tenn. The following history was given to me by Dr. Yeattes :

He was called to see the patient May 29th. Patient had hard chill, followed by high temperature and severe sore throat. On examination both tonsils were very much inflamed, presenting the usual symptoms of tonsillitis. Patient was treated in usual manner.

The following day Dr. Yeattes was called to see the patient again. His throat symptoms were aggravated, left tonsil presenting evidence of a peritonsillar abscess, and was incised later in the day sufficiently to drain any ordinary abscess. The only thing observed was the usual bleeding which occurs in such cases, but the blood seemed to be darker than usual. On a subsequent visit the lancing of the tonsil had not seemed to give any relief, but instead there was observed a rise of temperature, and the pulse rate was more rapid. The throat had been persistently swabbed with iodine, alternating with nitrate of silver, also an antiseptic gargle had been used since the beginning of the attack. Neither of these seemed to give the slightest relief. Patient was seen again the following day by Dr. Yeattes. The tonsil that was incised presented a slight greenish color, and the right tonsil had the same appearance of a peritonsillar abscess that the left had at the time it was incised.

On the fourth day of his illness the patient was referred to me at the Baird-Dulaney Hospital. At the time of his admission his temperature was 103, pulse rate 94. He had every appearance of a very sick man. Patient stated that he had had frequent attacks of tonsillitis all of his life, but more frequently during the past winter while in army service. Was discharged from the army a short time before entering the hospital. The present attack from which he was suffering came on suddenly and was more severe in every particular than any previous attack.

On examination of his throat both tonsils were extremely swollen. Left tonsil presented a decided greenish color, and the right tonsil was very red and inflamed, showing in the center a small greenish spot, but the pillars and uvula did not show any evidence

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of greenish discoloration. Twenty-four hours later the left tonsil was black all over with beginning sloughing. Points of bleeding quickly appeared. The process had begun to extend over the edge of the pillars, velum and uvula. There was a dark green patch on the right tonsil. This progressed rapidly until it soon reached the same stage and characteristics of the left tonsil. By this time the necrotic material could be sponged away with a cotton swab and had a most offensive odor. A peculiarity of this condition was that the necrosis stopped at a thin scarlet line, and normal appearing tissue began without any surrounding hyperemic zone. This sharp demarcation persisted throughout the entire course of the infection.

From the beginning the inflammation seemed to be almost entirely limited to the tonsils. No membrane was ever observed throughout the course of the disease resembling that of diphtheria or streptococcic origin, and the pathological report made by Dr. Motley eliminated the doubt in our minds regarding the gangrenous condition being secondary to these forms considered.

The gangrenous process extended throughout the entire tonsillar tissue to the deeper structures. All the lymphatic glands of the neck were considerably swollen, which made deglutition very difficult. The patient had to be fed almost altogether by rectum. There seemed to be an unusual amount of nausea. There was absolute intolerance to whiskey or other necessary stimulants except those given hypodermatically. On the ninth day the tonsillar tissue was almost completely sloughed away and left an annoying, bleeding surface to add to the nausea. Patient's physical condition gradually grew worse. His color, which was pallid on the day of admission, rapidly became more septic, until before death he presented a sickly yellow color which was almost green. He finally became comatose and died on the eleventh day after admission to the hospital.

A pathologic examination was made by Dr. Motley, who saw the case with me daily, with the following findings:

A stained smear of the necrotic material showed a number of organisms in almost pure

culture, consisting of streptococci, staphylococci, and diplococci. Culture of the material gave a luxuriant growth on plain agar, blood serum, and blood agar. On blood agar no colonies appeared which showed hemolysis. No one organism seemed to predominate in point of numbers. Isolation of the organisms gave colonies of staphylococcus aureus, a short chained streptococcus, and a micrococcus which presented the characteristics of pneumococci.

Case II—H. S., male, aged 1, referred to me July 14, 1919, by Dr. S. T. Yeattes, Menlewood, Tenn., with the following history:

Patient was taken with chill, followed by high fever and severe sore throat, but did not consult a physician until the following day, when he was immediately referred to me at the Baird-Dulaney Hospital. At the time of his admission his temperature was found to be 102, pulse rate 120. On examination of his throat, tonsils were very much inflamed and presented several small green patches, and the involvement of both tonsils was practically the same. Prior to this attack patient had had several attacks of tonsillitis; otherwise he was a strong healthy child. Patient had had measles and whooping cough, also gave the history of having had "flu" the latter part of February, 1919. Parents living and in good health.

When patient was seen on the second day after admission to the hospital and on examination of his throat the green colored patches had now coalesced and were a dark, typical gangrenous color which had gradually extended to the pillars, velum and uvula, as in the first case. The lymphatic glands of the neck were very much swollen and extremely tender. This patient seemed to be very ill and also presented symptoms of a profound toxemia. The sloughing of the gangrenous tissue began on the third day after admission, and a clear line of demarcation was established about the fifth day. Every effort was made to remove the sloughing masses as rapidly as possible. While there was a troublesome bleeding and an offensive odor, the patient seemed to have an unusual stomach and was never upset in any way to interfere with proper nourishment. After the first day of

admission his temperature was never higher than 100, but pulse rate remained on an average of about 132 for several days. Unlike Case No. 1, this patient slept most of the time and did not show any of the extreme nervous symptoms that were manifested by the former case. The necrotic processes were removed by the eighth day and the patient was dismissed, practically cured on the tenth day. With the exception of a slight amount of scar tissue, patient made a good recovery.

The pathological report made by Dr. Motley in this case was practically identical with that of Case No. 1, so much so that it is not necessary to report the findings.

One of the peculiarities of both cases reported in this paper is the fact that no one of the organisms recovered from the throat habitually causes the type of inflammation and gangrene here described, and also the fact that the two patients came from the same locality within a few days of each other.

The treatment in these two cases was limited to the use of local and constitutional remedies. Frequent applications of 20 per cent solution silvol, alternating occasionally with iodine, peroxide and antiseptic gargles, principally chlorate of potash. No serum or vaccine was used in these cases, as no specific organism was isolated which would justify a specific treatment.

REPORT OF A CASE OF BRAIN TUMOR SHOWING THE VALUE OF THE BAR- ANY TESTS AS ONE OF OUR EARLY DIAGNOSTIC METHODS.*

By Louis Levy, M. D., F. A. C. S.

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There is no doubt that where it is possible to diagnose brain lesions early we are often better able to help, and in many cases to save the lives of such patients. In the work that

I have done with the Barany tests I am convinced that we now have a method that is far superior to any method of diagnosis yet given us in these cases—this being true, of course, where these tests are properly made by men who understand the work. I have already seen several cases improperly tested and the wrong diagnosis given, with the result that the Barany tests have been questioned, instead of the man doing same. It is to demonstrate the value of these tests as an early diagnostic measure that I now report this case before the Section.

H. M. Jr., age five years, was brought in to see me on March 12, 1919, his mother stating that for the past week he has been suffering from an irritation on the outer corner of left eyelids, all other history being negative as far as the mother knew, for she stated he was in the best of health otherwise. Upon examining the child we found that he held his head back and towards the right shoulder, with mouth open, as seen in one with adenoids. Nose O. K. Nasopharynx O. K. Throat O. K., tonsils and adenoids having been removed about one year previous. Ears and hearing normal. Examination of the eyes showed marked nystagmus to both sides, rotary on looking up, vertical down, all nystagmus to left, marked inequality of pupils, left being the larger, reactions, however, good. Slight internal strabismus of left eye. O. D. Vision 20-60, O. S. Vision 20-40, fundi O. K. Claims double vision when head is held in the proper position.

Father and patient were leaving the next day for New York, so I was unable to make a Barany test, but advised them to see a neurologist while there. Instead of this the patient's father, who was from the East, saw his family physician who advised that an oculist be seen. The eyes were gone over carefully and the prognosis given was excellent.

When the child and parent returned to see me on April 12, 1919, they were very indignant at me for having, seemingly, alarmed them when, as the parent stated, I could have examined the eyes, given him glasses, and ended the whole matter. I stated at this time that it was not the eyes that I was interested

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in but the condition producing this eye trouble. Finally, after much persuasion, they went in to see Dr. Bunting, of Memphis. His examination, outside of the spinal fluid pressure, which was rather high, showed very little at this time.

The first Barany test was made on April 12, showing the following: Spontaneous nystagmus. On looking to right, oblique up to left; looking to the left, rotary to right; looking up, mixed; looking down, none (at this time you will note the spontaneous downward nystagmus seems to have disappeared). Spontaneous past-pointing: With right arm one inch to left, with left arm a questionable one inch to left. Upon turning the patient to right, rotary nystagmus to left, duration 17 seconds; past-pointing with right arm first touched and then one inch to left, with left arm three inches to right. Falling normal. On turning to left, horizontal nystagmus to right, 14 second duration; past-pointing with right arm one inch to left, which is the same as spontaneous; left arm three inches to left. Falling sub-normal. With the caloric test douching right ear produced a poor rotary nystagmus after two minutes; past-pointing with right arm touch, left arm three inches to right. With head back, oblique nystagmus to left; past-pointing, right arm at first touch, then one inch to left; left arm two inches to right. Douching left ear produced a poor rotary nystagmus to right after one minute and 45 seconds; past-pointing with right arm showed touch and then one inch to left, with the left arm two inches to left. Falling sub-normal. With the head back, an oblique nystagmus to left; past-pointing right arm touch and one inch to left, left arm three inches to left.

Upon reviewing the anatomy of the pathways you will immediately be struck by the fact that the reactions on the right side are being interfered with. I do not want to worry you with repeated tests that were made, so will now skip to the test made on November 4, 1919, at which time the father brought the child in again and stated that he now noticed that at times patient is rather unsteady on his feet.

Examination of the eye at this time showed more marked internal strabismus of left eye,

pupils about equal in size. With the ophthalmoscope slight blurring of both discs. Barany test now as follows. Spontaneous nystagmus: Looking to right, rotary to left; looking to left, oblique upward and to right; looking up, rotary to left; looking down, vertical down combined with the rotary to right. Past-pointing, right arm one to two inches to left, left arm touch. Falling tendency to left. Romberg unsteady. Upon turning patient to right we have oblique nystagmus upward to left, 12 seconds duration. Past-pointing right arm touch and then one inch to left, left arm two inches to right. Falling sub-normal. Turning to left nystagmus questionable rotary to right, but stops almost immediately. Past-pointing, right arm to left four inches, left arm two inches to left. Falling O. K. The douching test showed practically no nystagmus with the past-pointing still off with the right arm. On November 20 I was called to the home to see the patient, for he was now in bed complaining of headaches, some vomiting and dizziness. With the ophthalmoscope found the blurring of the discs and retina was more pronounced.

In skipping from April to November I do not wish you to think that this patient had by any means been overlooked, but wish to say in spite of Dr. Bunting's and my suggestion that they go East and see a neurologist to confirm our diagnosis, they during the summer went back to New York and again saw oculists, who it seems tended to disagree with our findings here. To quote one in reference to the nystagmus: "As regards the jerking nystagmoid movements (pseudo-nystagmus) which he shows when the eyes are moved in extreme positions, I have found them to occur so often whenever from any cause the movements of the eyes are restricted and the attempt is made to carry the eyes far out into the field of action of the weak muscles, that, like Uhthoff, I have come to regard them as having very little diagnostic significance. It would seem, indeed, as if in a very large proportion of these cases, the pseudo-nystagmus, are simply an expression of that incoordination that comes from trying to execute an extreme movement with a weak muscle. At all events, I have seen a great many cases of this sort which never showed any evidence what-

ever of central or cerebellar disease and which except for this impaired motility would be classed as normal. I am not, of course, contesting your diagnosis which, doubtless, is sound. Only, I own that so far as the ocular evidence is concerned, I am not clear as to the grounds for it." This was written to a neurologist in New York, who the oculist there requested them to see and who also told them he suspected this was a case of brain-tumor. The people, of course, would not listen to him and came back telling us of the good prognosis given them by the oculists.

Upon their return they also saw Dr. E. C. Ellett, as regards the eyes, and he agreed with us that the eyes were not the points to watch and after a consultation the parents of the patients were once more requested to go East. As the symptoms of November 20 appeared they decided to do as we requested and went to see Dr. W. G. Spiller and Dr. Lewis Fisher, of Philadelphia, who verified our findings and insisted upon an operation.

Parents then decided to take patient to Boston to Dr. Cushing for operation and I quote Dr. Cushing's letter to Dr. Bunting: "Dear Dr. Bunting: The little M. boy had an acute upset the night he reached here owing to the fact that the parents would not believe he had anything serious the matter with him and consequently they traipsed him all over Boston that afternoon. I operated more or less as an emergency the following day. He had a large, massive, slow-growing endothelioma completely wrapped around the right side of the brain stem, and with the central mass directly over the fourth ventricle. Unfortunately it was an irremovable tumor. The boy, however, is doing well and his parents know the serious nature of the trouble. I expect them to leave home in a few days and shall hope to have him for a thorough series of deep x-ray treatments, in the hope that the tumor may diminish under their influence as much as a uterine fibroma does. This, as far as I can see, gives him his best chance."

This case has been an extremely interesting one to me for several reasons; first, that it shows clearly the value of our Barany tests in early diagnosis as you will see from our original test from which we gave our first diagnosis. It was a simple matter in Novem-

ber and December to say what Dr. Bunting and I had told them very much earlier and probably had they listened to us at this time the child would have been much better off. Second, that oculists do not tend to give as much attention to the nystagmus as should be given it; and third, that because of our diagnosis parents of patient became very "sore" at me and now feel that I have been unfair to them because upon seeing the child the first time I did not immediately make a definite diagnosis without consultation, in order, as they expressed it, that they would not have had to undergo such an expense seeing other men. It seems they have yet to realize that my interest in the case was such that is asking consultation I was doing it for the good of the child.

BARANY TESTS*

By John J. Shea, M.A., M.D.,
Memphis.

In presenting this paper to the Section, I have no original or new phases to add to the work already done, but, as a disciple of Barany and the American group of neuro-otologists. Robert Barany, of Vienna, won the Nobel prize by his extensive demonstration of the relation to clinical medicine of the vestibular tests, but to a group of Americans belongs the credit for bringing the work out of chaos and clarifying it so that a man of ordinary brains may understand the subject and apply it to his work. This group is composed of Drs. Jones, Fisher, Randall, Mills, Weisenberg and Brumm, of the University of Pennsylvania; Eugene Lewis and MacKenzie. Every case that presents for the principal symptom vertigo, staggering, tinnitus or progressive deafness has not been thoroughly studied until a complete Barany test has been made. To the otologist belongs the right and obligation of making and judging the results of these tests. In the past, the neurologist and internist have relied upon the ophthalmologist to aid them in their diagnosis of intra-cranial and constitutional path-

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ology by revealing what the fundus indicates, but now the otologist is in more demand, for, by testing the labyrinth and the pathways of the eighth cranial nerve, a great portion of the brain is covered.

Anatomy

The labyrinth is, as a rule, looked upon by the medical profession as something beyond the conception of a human mind, but if you forget all you have tried to remember about it and consider it as three canals and two reservoirs containing a fluid capable of being set in motion and supplied with nerves of a special sense ability, you will have a working basis of the anatomy. The horizontal canal is in the horizontal plane of space and the remaining two are in the vertical plane, set at right angles to each other. This arrangement presumes that the head is held in the proper position, which is 30 degrees lower than the usual position. The eighth cranial nerve is divided into two branches, the cochlear and the vestibular, and from the latter are derived the nerve fibres to the labyrinth. The fibres from the horizontal semicircular canal pass through the eighth cranial nerve stem and enter Deiter's nucleus in the medulla oblongata. At this nucleus the fibres divide, going on the one hand to the posterior longitudinal bundle, through which they are connected with the various eye muscle nuclei, to be distributed through the third and sixth nerves to the eye muscles themselves. It is this pathway that is responsible for the eye movement. The other pathway goes from Deiter's nucleus through the inferior cerebellar peduncle to the cerebellar nuclei of the same side, from which it proceeds through the right superior cerebellar peduncle to the decussation of the two superior cerebellar peduncles in the base of the cerebral crura; from this point there are two pathways to the cerebral cortex of both sides, but the main pathway goes to the cortex of the opposite side. The cortical centres that receive these fibres are postulated by Mills to be in the posterior portion of the second temporal convolutions adjacent to the cortical areas for hearing. It is this pathway from the horizontal canal to the cerebral cortex, passing through the cerebellum, that

is responsible for the production of vertigo or ear stimulation. The fibres from the vertical semicircular canals have a different pathway after entering the brain-stem, ascending in the pons to a point above the middle of the pons. At this point the fibres divide, on the one hand going to the posterior longitudinal bundle, to be distributed to the eye muscles, via the third and fourth nuclei; on the other hand the fibres enter the cerebellar nuclei through the middle cerebellar peduncle, from which point their pathway is the same as that of the fibres from the horizontal canal. In a nutshell, by the vestibular apparatus we mean the static portions of the internal ears, and the pathways from the ears through the brain-stem, cerebellum and cerebrum. The nerves from the horizontal canal ascend through the medulla in a different path from the combined fibres of the two vertical canals."—(Drs. Jones and Fisher.) The principal differences are that their sources differ after entering the medulla and likewise their entrance into the cerebellum is through different pathways.

Physiology

When the fluid in the canals has been set in motion either by rotation of the body or by the "thermosyphon" action of change of temperature of the fluid, it will move the cilia processes of the contained nerve fibres which will send a stimulus to the brain. The brain has learned to interpret this in such a manner as to recognize what change of position has occurred and the present position of the head. This ability of orientation we now consider as a special sense—and in conjunction with the knowledge obtained from vision and muscle sense it composes the system of equilibrium. Two reactions occur because of these stimulations, a definite movement of the eyes and the sensation of vertigo. We can see the former, but must rely upon the statement of the patient for the latter or else measure it by the two phenomena produced (past pointing or falling).

The movements of the eyes are called nystagmus and consist of two parts, a slow movement which is always in the direction of the endolymph flow and a rapid movement jerking the eyes back from their newly acquired position. There have been some

unnecessary complications attached to these movements by misnaming them in their early work. The slow movement is caused by the flow of the lymph and is the real nystagmus, while the rapid movement is only an attempt upon the part of the cerebrum to correct the disturbed ocular position. The other reaction, vertigo, is in the opposite direction from the flow. Hence, when the patient attempts to point, he presumes that he has moved in a direction opposite from that of the endolymph flow and in his endeavor to touch the point correctly, will pass beyond the point and this direction coincides with the endolymph flow. Two general rules are all one has to remember of the physiology of the labyrinth reactions:

1. The slow movements of the eyes and the past-pointing are in the direction of the endolymph flow.
2. The sensation of vertigo is in the opposite direction to the endolymph flow.

Tests

A thorough examination of the nose, throat, tonsils and sinuses is made and recorded for further use in the consideration of any pathology afterward located. The usual ear tests are made to determine the condition of the vestibular branch of the eighth nerve. In order to determine the condition of the labyrinth system as a unit, we have the rotation tests; and, in order to test each canal separately, we have the caloric or douching tests. We first determine if there is any spontaneous nystagmus or if it may be produced by the changing of the position of the eyes. This is best made by having the patient fix his vision on a distant object and turning him first to the left (eyes to the right), then to the right. Next, while retaining the position of the head, have him look up as high as he can and then down at the floor in front of him. The rotation test is made by placing the patient in the Pennsylvania chair, adjusting his head properly (30 degrees inclined forward) and having him close his eyes. Then the patient is turned to the right ten times in twenty seconds and brought to a stop. He is commanded to open his eyes and fix his vision on a distant object, still retaining the correct position of the head. A stopwatch is the only reliable means of timing the duration

of the nystagmus. We observe the slow component and the fast component, as likewise their amplitude. The patient is turned in the opposite direction ten times in twenty seconds and the same observations made. The correct number of seconds for the nystagmus is twenty-six seconds. Next the patient is demonstrated the proper way to test the touching and his spontaneous touching is recorded.

With the eyes closed, the patient is turned to the right ten times in as many seconds, which is twice the rate of the previous turning, and brought to a fixed stop. His touching is rapidly tested, first his right, then his left, and back and forth until he touches with both hands. These are recorded in inches to the right or left, as he missed to the right or to the left. The tests are again repeated after he is turned in the opposite direction.

The douching tests are made by having the patient sit in the chair with the head in the proper position and the ears are irrigated with water at 68 degrees F. With the stopwatch the time is estimated from the beginning of the flow until the first twitch occurs. This is noted as the time necessary for the production of the nystagmus and should be 40 seconds. We allow the water to flow a while longer in order that the labyrinth may be thoroughly cooled. A notation of the character of the nystagmus is made and the patient told to close his eyes. His touching is again tested, noting the direction and distance of his miss. These tests are for the vertical canals.

The position of the patient's head is changed so that the horizontal canals may come into the vertical planes and this is obtained by having the patient's head held 60 degrees backward. The nystagmus is noted as to direction and amplitude. He is again told to close his eyes and the past pointing tested of the horizontal canals. When the horizontal canals cause the nystagmus, the direction of the movements are in the same plane of space as the canals at present are in; that is, when the canals are horizontal they are in the horizontal, and when the canals are in the vertical plane they are from side to side.

Interpretation of the Reactions

The interpretation of the reactions requires a consideration of all the possibilities that may produce such a deviation from the normal and necessitate experience and an analytical mind. But certain little rules may be used to help the beginner.—(Dis. Jones and Fisher.)

1. Peripheral lesions.

(a) An impairment of the function of both the auditory and vestibular branches. If this impairment is proportional, it is the more decisive.

(b) Tinnitus. History of presence.

(c) Proportional impairment of the responses from both the horizontal and vertical canals.

(d) Proportional impairment of vertigo and nystagmus.

2. Central lesions.

(a) A normal cochlear, but impaired or non-responsive semicircular canal.

(b) Normal response from horizontal, but not from vertical canals, or vice versa.

(c) Normal nystagmus, but impaired vertigo from the same canal, or vice versa.

(d) Normal vertigo and nystagmus from the same canal, but impaired past-pointing in any direction of an extremity.

(e) Spontaneous vertical nystagmus is pathognomonic of brain-stem lesion.

Application of the Tests

1. To the general practitioner these tests are a means of determining the cause of his patient's vertigo. He may have the same confidence to continue treatment along a definite line after the tests have made a diagnosis of functional or organic vertigo just as he has to carry on strenuous anti-syphilitic treatment after a positive Wassermann. It is a great satisfaction to tell a patient suffering from vertigo that you are sure that he is not afflicted with a brain tumor or any other serious nervous disease, but that he is only disturbed because of some circulating toxin.

2. How often after testing the patient with the forks, Gaulton whistle and the whispered voice, you are unable to tell him definitely whether or not he has a nerve deafness or only a chronic salpingitis of the Eustachian tubes! In these cases a simple appliance of the turning tests alone or the complete tests

will give you data of sufficient security to tell the patient whether or not his vestibular nerve is involved. Because we can locate the involvement of the end-organ and the vestibular branch of the eighth nerve and the neurologists tell us that a peripheral neuritis is not liable to select a branch of a peripheral nerve, but rather include the entire nerve. But still more important in clearing up the diagnosis are the tests after a mastoid operation, when the complex of symptoms points to a brain abscess or suppurative labyrinthitis.

3. Sometimes before the Wassermann test has developed, by a careful comparison of the daily tests, we are able to diagnose the syphilitic character of a lesion, for in the early days of the infection we have a consistent shortening of the vestibular reactions. In the early meta-syphilitic conditions we also have a valuable means at our disposal of apprehending nerve degeneration by testing the nerve pathways involved in these reactions.

4. The eye man may use the nystagmus movements to determine the nerve control of the eye muscles. For instance, I had recently a young girl, aged three, who, after a decompression operation for fracture of the vault of the skull, presented an internal strabismus of the eye of the same side. I was able by douching with cold water the ear of the same side to test the nerve supply of the external rectus. It failed to be drawn to the right, while the eyes of the opposite side came over to the right. This satisfied me that she had a paralysis of the sixth nerve. As time passed by, a repetition of the tests showed the returning enervation to the muscle until finally the right eye would move to the right upon producing a flow of the endolymph in the right horizontal canal to the right.

5. A proper conception of the tests and their scope is indispensable to a modern neurologist, for here he has the means of determining whether a lesion is intracranial or peripheral. Also he is able definitely to localize lesions in the medulla, pons, cerebellum and cerebrum by tracing these nerve impulses through the various nerve tracts traveled by the impulses either as efferent or afferent. He is able to ascertain the cause for the

patient's staggering and, as applies to the ear tests, it gives him a solid foundation upon which to build his opinion.

Conclusions

1. Great interest in what Barany has accomplished during the war is being manifested by the American School of Neuro-otology.

2. A more universal use of the tests is needed to advance the scope of this wonderful work.

3. The application of the tests of a variety of pathological conditions will reveal that the labyrinth suffers from many sources, the most prominent being auto-intoxication, auto-infection, syphilis, mumps and cerebral arteriosclerosis.

SOME CASES SHOWING AN UNUSUAL- LY HIGH DEGREE OF HYPEROPIA.*

By E. C. Ellett, B.A., M.D.,
Memphis.

Hyperopia between 5D and 10D is not sufficiently rare to attract special attention, and its manifold disadvantages are well known. The mention of such cases suggests numerous interesting things in connection with hyperopia in general, such as the family tendency, the whole family often possessing these annoyingly high errors of refraction. The fact that the hyperopic eye is a small eye, and on that account frequently an undeveloped eye, would prepare us for the subnormal vision which we so often find, as well as the tendency to squint, also a common result of high hyperopia.

Even when correctable to a satisfactory degree by lenses, the fact that one must look through the center of strong lenses, and approximately at right angles to the surface in order to secure vision free from the disturbance of cylindrical and prismatic effect which occurs when one looks through them obliquely is a source of considerable annoyance to those who have to wear strong lenses. The so-called Tories are not much help, since the necessary curve must be added to the

already convex side, and I have found that double convex lenses, even in compounds, are frequently the most satisfactory form. The introduction of the Gullstrand lenses to our markets had just begun when the war came on, and apparently the matter has not been revived to a point where they are generally available. They are of signal advantage to highly hyperopic and aphakic patients.

The cases to be reported all showed hyperopia over 10 D. It is interesting to note that none of these eyes was microphthalmic. On the other hand, I can recall one well marked microphthalmic eye—one, since the patient had but one eye—which was only moderately hyperopic.

It would have been interesting to have studied more carefully the muscle conditions. It is not easy to understand how eyes whose ciliary muscles are striving to overcome the handicap of such high hyperopia can fail to call on the convergence to a sufficient degree to cause squint, but only one of these patients squinted.

I have no conclusions to draw from the observation of these cases. The books do not say much about these high errors, and the presentation of them is partly on that account and partly because they are rare, and therefore of interest. There is nothing special about their management. I have followed the same plan I would in the correction of hyperopia of lesser degree, and on the whole the patients have been helped by the correction of the error.

Case 1—M. S., aged 6, was examined in 1906. She complained of poor vision, but was too young for an accurate test. She saw about 20-200, and the fundus was normal. Under atropine the retinoscope showed plus 14 in the vertical and plus 15 in the horizontal meridian in each eye. She was given plus 12, with which she saw 20-100.

Case 2—M. C., aged 10, was seen in November, 1919. She was wearing glasses for poor vision and headache, the ones she had being plus 5 with a plus 1 cylinder, fitted by a colleague under cycloplegia. Vision was 20-200 and J 12 in each eye. The refraction as measured with the ophthalmoscope was plus 11 in each eye and the eye grounds were normal. Under atropine, plus 13 in each eye gave

*Read at Annual Meeting of Tennessee State Medical Association before Section on Ophthalmology and Otolaryngology, April, 1920, at Chattanooga.

vision 20-60 and 20-80. The retinoscope gave reversal at one meter with plus 15 right and plus 17 left. The ophthalmometer showed 1 D of corneal astigmatism in the right eye. The radius of corneal curvature was 7.1 and 7.2 in the principal meridians. The left eye showed less astigmatism, and the radius of curvature was 7.1 in all meridians. There was one degree of L. H. and two degrees Es. Plus 10 and plus 12 were ordered at post cycloplegic test, giving vision 20-50 and J 3 in each eye. The headaches were improved.

Case 3—L. N., aged 6, was examined in 1919. The right eye has always been crossed. Vision 5-200 in each eye, hyperopia as measured with the ophthalmoscope 16 D. The eye grounds were normal, corneae 11 mm. in diameter, no corneal astigmatism, and the radius of corneal curvature was 6.85 in the right and 6.7 in the left eye. Under atropine, retinoscopy showed plus 23 in each eye. Vision after the cycloplegia passed off was 5-200 right and 15-200 left with plus 10.

Case 4—L. N., brother of Case 3, aged 9, examined 1916. Vision 5-200 in each eye. Eye grounds normal and plus 20. The corneae were 11 mm. in diameter, radius of corneal curvature 7.1 right and 7.0 left, with no astigmatism. Retinoscopy, plus 26 in each eye. Post cycloplegic, plus 11 gave 20-200 in each eye.

Case 5—W. N., aged 8, sister of Cases 3 and 4. Vision 20-200 and 5-200. Small central corneal scar in right eye from sticking scissors in it when a crawling infant. Under atropine, O. D., plus 5.00, with plus 2.50 cy. ax. 90=20-40. O. S. plus 6.00. helps. Corneae 11.5 mm. in diameter, radius of curvature of cornea right 7.3 and 7.75, left 7.4 and 7.75. This case is added because she was a sister of the other cases. The mother of these children was seen and examined ophthalmoscopically. She has H. plus 8. The father is said to have good eyes.

Case 6—This is the case of microphthalmos without high hyperopia. Mabel S. has been under observation for the past 11 years. The left eye was blind, with a corneal staphyloma, and was removed. The right eye was very small, the cornea being 9 mm. in diameter and slightly opaque. The fundus was visible, but not clearly seen. It seemed to be normal,

and there was apparently hyperopia of 5 D. Plus 1.75 improved the vision from 20-80 to 20-50. She was not tested under a cycloplegic, but there was certainly no high degree of hyperopia.

CONGENITAL SARCOMA OF THE ORBIT.

DR. E. B. CAYCE, Nashville.

Sarcoma occurs most frequently in childhood and the early adolescent age, but Sir John Bland-Sutton in his treatise on tumors says: "The round-celled sarcoma is the most generalized tumor that affects the human body. It may occur in any tissue, osseous, muscular, nervous, thymic, ovarian or testicular. It attacks the body in all periods of life from the fetus in utero and the child just born up to the extreme limits of age." He later says that the sarcoma of infancy tends to be bilateral.

Sarcoma of the orbit may simulate an inflammatory swelling, or angioma, as it does not have the same "hard feel" that characterizes it in many other locations. Quoting the same author: "Soft, rapidly growing sarcoma in uncommon situation often mimics in physical signs inflammatory swelling." It is the most malignant of all tumors, and owing to the rapidity of its growth and the tendency to metastasise, E. H. Kettle says: "The metastatic changes are due to its thin-walled blood vessels. It is commonly believed that small, round-celled sarcoma is derived from fibrous connective tissue of the body, but it is not unlikely that it represents the embryonic stage of all tissue."

DeSchweinitz mentions the danger of diagnosing an inflammatory condition as sarcoma, and Mueller reports several cases in Fuchs' Clinic where the orbits were eviscerated and on examining the specimens were found to be non-malignant inflammatory tissue.

CASE REPORT. Baby M., white, female, age 21 days, patient of Dr. Gilbert. Seen in the office. There is nothing of especial interest in

* Read before Section on Ophthalmology and Otolaryngology at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

the family history on either side. The delivery at birth was normal. The swelling over right eye was noticed when child was born, and when an effort was made to instill nitrate of silver it was impossible to see the right eye. When I saw the baby there was a soft mass over the right supra-orbital region almost filling the orbit, and it was impossible to determine the presence of an eye without using more force in raising the lid than we felt was justified. The color of swelling was slightly bluish and the feel was similar to that in a cellulitis. There was some secretion and a smear on culture showed numerous streptococci and staphylococci pyogenes alba. I made a tentative diagnosis of angioma, but decided to do nothing until the baby was presented at the Nashville Academy of Ophthalmology, which was done on the evening of January 19th.

On January 27th, under ether anesthesia, an incision was made on line with and slightly below the eyebrow and with some difficulty the skin was freed from the tumor. The growth was friable and bled freely. It was attached to the orbital ridge and the periostium of the orbit as far as the inner and outer canthus. The larger portion was removed and sent to Dr. Spitz for examination, whose report is as follows:

"Small round cell sarcoma; arising probably from embryonal connective tissues.

"Tissue from supra-orbital region. A number of small pieces of blood-stained, friable tissue.

"Sections display a dense mass of small, round cells, the nuclei of which fill their cells almost completely. Numerous thin-walled and irregular-sized blood vessels are found in all areas. Rarely a well developed vessel is seen. On the margins of some sections areas of voluntary muscle, cut in all directions, are seen, and these are infiltrated with the small, round cells. An occasional leucocyte is seen in the vicinity of a vessel. Mitotic figures are present, but very few in number. Very little inter-cellular substance is present and this is of an indifferent character."

It is our impression that the tumor had its origin in the embryonal connective tissue of the conjunctiva. We base this belief upon the following facts:

First—The presence of a well developed mass at birth.

Second—The location of the growth in the upper lid and supra-orbital region.

Third—The histological structure of the growth consisting of embryonal connective tissue cells poorly developed, thin-walled vessels, lack of intercellular structure, all pointing to undifferentiated tissue.

A PLEA FOR THE EARLY REMOVAL OF HYPERTROPHIED TONSILS AND ADENOIDS IN CHILDREN.*

BY LEWIS M. SCOTT, M. D., Jellico.

With reference to the glandular structure, both of the faucial and pharyngeal tonsils in infancy and early childhood, the anatomical and histological relations are identical, both being composed of lymphoid tissue. It is well-known, of course, that the lymphoid tissue exists normally in the nasopharynx as well as in the sinus tonsillaris, and that only when it becomes hypertrophied does it give rise to symptoms in either case.

The glandular structure of both tonsils and adenoids, being of identical anatomical and histological formation, what will hereafter be said with respect to pathological changes, management, etc., of the one will apply also to the other. It should be understood, moreover, that we are discussing tonsils and adenoids in children and not in adults. It is believed that if all tonsils and adenoids which caused trouble in early childhood were removed at the time, there would be few cases requiring such operations in later life. The reason for failure to recognize these conditions at an early age is that we do not look for them as carefully as we should, and especially is this true with reference to the tonsil.

Medical science has thus far given us no definite knowledge concerning the function of either the faucial or pharyngeal tonsils. Therefore, we need not consider that phase of the subject at this time.

* Read before Section on Ophthalmology and Otolaryngology at annual meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

The dividing line between the normal and the hypertrophied tonsil is rather difficult to establish, since the normal size of the tonsil in children of the same age may vary to a large extent; and, again, the hypertrophied tonsil most easily overlooked, and the one likely to give rise to the most trouble, is the so-called submerged tonsil. As a rule this type of tonsil does not protrude beyond the pillars of the fauces, its true condition being only observed when we cause the patient to gag, the deeper portion of the tonsil being thus brought into view by the action of the constrictor muscles of the pharynx and the palatal muscles. On the other hand, we are likely to conclude upon first inspection of the throat that a tonsil is hypertrophied when it protrudes beyond the pillars, whereas frequently such a tonsil lies in a shallow sinus and is not abnormal in size. After all, the tonsils which should concern us most are those which cause clinical symptoms.

It has been stated by some authorities that an hypertrophied tonsil is not, *per se*, a pathological process. If we take into account the fact that in practically all enlarged tonsils a pathological condition exists in the crypts, this being especially true of the submerged or buried type, we may assume that the foregoing statement is untrue. I desire to state, therefore, and from my own observations, that tonsils which remain hypertrophied for any considerable length of time after an attack of tonsillitis, or from any other cause, are pathological and should be enucleated.

We have yet no definite knowledge as to the cause of hypertrophy of the faucial or pharyngeal tonsils. Rhinitis, both acute and chronic, retention of excretion in the crypts, recurrent attacks of acute inflammation, are all said to be etiological factors. However, I think it safe to say that disease of the nasal mucous membrane, such as either acute or chronic rhinitis, is more frequently an effect rather than a cause of hypertrophy of the lymphoid tissue in the pharynx or the nasopharynx. This is due in a large measure to obstruction of the posterior nares, thereby interfering with ventilation and drainage of the nasal chambers. We must also admit that heredity has more or less influence in predisposing to such hypertrophies. For example,

instances are often noted where more than one, if not all the children in a family, have hypertrophied tonsils and adenoids. The acute infectious diseases, such as measles, scarlet fever and influenza, might be considered as direct causes. The writer has under observation at present a patient with hypertrophied tonsils and adenoids plainly caused by scarlet fever. The child, now three years old, had an attack of scarlet fever in December, 1919, which pursued the usual course, save that the stage of desquamation was delayed beyond the usual time. About one month after recovery the mother noticed that the child had some enlarged glands in the neck and disturbed nasal breathing, which was more pronounced at night. Examination of the patient a short time ago revealed considerable enlargement of the faucial tonsils, which were of the submerged type, with corresponding hypertrophy of the pharyngeal tonsils. The cervical lymph glands of the right side were very much enlarged, especially the tonsil gland on that side.

Just here it might be well to briefly consider the anatomical relation of the cervical lymphatic structures with respect to the tonsils and adenoids. By referring to the anatomy of the cervical lymphatics we note that the efferent branches of the tonsil pass through the superior constrictor of the pharynx and empty into the tonsil gland, which is situated just beneath the anterior border of the sternomastoid muscle below and slightly under the angle of the jaw. This gland is said to be one of the most constant in position of any of the cervical group, and when enlarged it extends anteriorly beyond the anterior border of the sternomastoid and appears superficially from one-half to three-fourths of an inch below the angle of the jaw. When enlarged this gland is often mistaken for the tonsil, especially by the laity. The fact is, however, that the location of the tonsil is such that even its most posterior and inferior borders are in front and above the angle of the inferior maxillary bone. It can never be felt externally save, perhaps, when involved in malignancy.

The chain of submaxillary glands (ten to fifteen in number) is situated just beneath the body of the lower jaw in the submaxillary

triangle. These glands have no direct connection with the tonsil, since no efferent nor afferent lymphatic branches pass from there to the tonsil. The most posterior of the submaxillary glands, which is situated just below but in front of the angle of the jaw, is often mistaken for the tonsil gland. This submaxillary gland is never involved from infection of the tonsil, since, as we have just stated, it has no direct lymph connection with the tonsil. One of the most frequent causes of enlargement of this gland is an abscess at the root of a diseased tooth. Since the efferent lymph vessels of the pharyngeal tonsils connect with the superficial and deep cervical glands, no doubt such glands quite frequently become enlarged as a result of infection from that source.

As we are all familiar with the various troubles which may result from diseased tonsils and adenoids I will not trespass upon your time by further discussion of that phase of the subject. I desire to state, however, that from my own observation middle ear complications are among the most frequent results of hypertrophied tonsils and adenoids. There is hardly a day passes that I do not see a patient with otitis media, either acute or chronic; suppurative or catarrhal; or tubo-tympanic involvement, with resulting impaired hearing, that might have been prevented by early removal of pre-existing hypertrophied tonsils or adenoids; many of these conditions having become permanent with no hope for improvement from the removal of either adenoids or tonsils.

The question now quite naturally arises: How early in the life of the child should we remove tonsils and adenoids? It has heretofore been the custom to wait until the child was at least five years old before enucleating the tonsils, and about one year was given as the youngest age for the removal of adenoids. I formerly adhered more or less to this custom, but experience has taught me a lesson; and now instead of waiting I am removing hypertrophied tonsils in children two years of age, and would not hesitate to remove the tonsils in a child one year old if indicated by the symptoms present.

Those of you who have not resorted to early operation in such cases will be impressed

with the favorable results to be obtained by this practice. A child that is constantly "taking cold," having repeated attacks of laryngismus stridulus or bronchial affections, to say nothing of the many other troubles which arise from hypertrophied tonsils and adenoids, will in most instances be completely relieved and present an entirely different appearance after removal of the cause.

In many instances where adenoids have been removed, especially in young children, it has been noted a few months later that the tonsils were enlarged, and that the adenoid growth had also returned. After telling the mother that "the tonsils should now be removed," she will invariably ask why we "did not take them out at the time we removed the adenoids" and while the child was under the anesthetic. Of course we have to "hedge" a little when we tell her the tonsils were not enlarged at that time; but the truth of the matter is had we taken the pains to investigate we would in all probability have found hypertrophied submerged tonsils and our duty was to advise their removal at the primary operation.

Notwithstanding the fact that most authorities agree that hypertrophied tonsils do not stimulate growth of the lymphoid tissue in the nasopharynx, it is my opinion from past experience that they do in a great many cases. In numerous instances I have found that where the tonsils were not enucleated at the time the adenoids were removed that the latter nearly always returned; but where both were removed at the same time very rarely did the adenoid growth return.

On the other hand, it has been stated that removal of either the tonsil or adenoid alone had a tendency to produce a vicarious action upon the other, *i. e.*, causing it to become hypertrophied. If this be true it is all the more important that they should be removed simultaneously. Had we not better, like the general surgeon when dealing with the appendix, be a little more radical and remove a few tonsils which did not show a decided degree of hypertrophy at the time of the primary operation, than to have to remove them later, especially since we know nothing definite with respect to the function of either the tonsil or adenoid?

THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee

Office of Publication, 327 7th Ave., N., Nashville, Tenn.

APRIL, 1921

EDITORIALS**THE NASHVILLE MEETING.**

The 88th Annual Meeting of the Tennessee State Medical Association at Nashville is said by some who have attended many annual meetings to have been in some respects the best of them all. The attendance was good, the register showing 370 names. As always, some who were present did not register.

There were 62 papers on the program and 34 papers were read. Of the first 34 names on the program only 17 responded when their names were called.

The section on Eye, Ear, Nose and Throat had eleven papers on its one-day program and every single man responded when his paper was called. There were about sixty men in attendance in this section, by the way, which is pretty good evidence that there is a very genuine interest in its work.

The attendance upon the last day of the meeting was much larger than usual. As a general thing there are about ten or twelve men on hand when the "cat dies" along about 12 o'clock on the last day, but this year there were more than sixty present at the end of the morning session.

The House of Delegates was well attended and business was dispatched promptly. An amendment to the Constitution was adopted providing for a speaker of the House of Delegates, who will preside over its sessions in the future. Another amendment provides for the election of Councilors by the House of Delegates on the second day of the annual meeting.

Dr. Sheddan, the President, kept things moving all the time. His ability and alertness as a presiding officer had much to do with the general success of the meeting.

OFFICERS FOR 1921.

At the 88th Annual Meeting of the Tennessee State Medical Association held at Nashville April 12, 13 and 14, the following officers were elected for the year ending in April, 1922:

President, Dr. Wm. Britt Burns, Memphis.
Vice-President for Middle Tennessee, Dr. L. W. Edwards, Nashville.

Vice-President for West Tennessee, Dr. A. B. Dancy, Jackson.

Vice-President for East Tennessee, Dr. G. P. Zinkle, Kingston.

Treasurer, Dr. J. F. Gallagher, Nashville.

Speaker of the House of Delegates, Dr. A. F. Richards, Sparta.

Delegate to A. M. A., Dr. L. A. Yarbrough, Covington.

Alternate Delegate, Dr. W. J. Breeding, Sparta.

Councilors:

Second District, Dr. S. R. Miller, Knoxville.

Fourth District, Dr. Z. L. Shipley, Cookeville.

Sixth District, Dr. W. C. Dixon, Nashville.

Eighth District, Dr. M. F. Herron, Jackson.

Tenth District, Dr. J. L. McGehee, Memphis.

Secretary-Editor, Dr. Olin West, Nashville.

Chairman of Section on Eye, Ear, Nose and Throat, Dr. E. B. Cayce, Nashville.

Vice-Chairman, Dr. Willard Steele, Chattanooga.

Secretary, Dr. J. B. Blue, Memphis.

SUMMARY OF TREASURER'S REPORT.

The summary of the Treasurer's report, which was submitted in itemized form to the House of Delegates and referred to and approved by the duly appointed Auditing Committee, is given below. Because of the cost of printing the full itemized report only the summary is here presented.

Balance on hand April 1, 1920.....	\$ 2,588.10
Total Bank Deposits	9,144.25
Interest on Deposits	42.60

\$11,774.95

Deduct error, entered twice	24.84
<hr/>	
Total receipts for year.....	\$11,750.11
Canceled Checks returned	7,592.32
<hr/>	
Apparent Balance	\$ 4,157.79
Deduct outstanding Checks Nos.	
482, 563, 565, 570, 571, 572.....	86.08
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Actual Balance April 1, 1921....	\$ 4,071.71

J. F. GALLAGHER, *Treasurer.*

Approved April 14, 1921.

O. DULANEY,
L. A. YARBROUGH,
H. M. TIGERT,
Auditing Committee.

The principal disbursements by the Treasurer were as follows:

Medical Defense assessments sent to Secretary and transmitted by Treasurer to Chairman Committee.....	\$ 860.00
Salary of Secretary-Editor	1,000.00
Salary of Stenographer	870.00
Office Rent	180.00
Official Stenographers, Annual Meeting	251.40
Printing and Mailing Journal.....	3,979.85
Telephone and Telegrams	87.20
Honorarium for Treasurer	100.00
Postage	86.00
Office expenses	183.44
Expenses Delegate to A. M. A.....	50.00
Expenses Mrs. J. M. Hamilton to Annual Meeting at Chattanooga..	20.00

Incidentals amounting to a little more than ten dollars account for all other expenditures not listed above.

SECRETARY'S REPORT.

To the House of Delegates, Tennessee State Medical Association:

At the last annual meeting at Chattanooga it was my pleasure to report to you that the enrollment of members for the year 1919 was the greatest in the history of our Association, having reached the number 1,628. It is extremely gratifying to be able now to report that 1,700 members were enrolled during the year 1920 and that thus a new record has been established.

Because of increased costs of printing and

supplies, the House of Delegates at the last meeting increased the annual membership dues from \$2.00 to \$4.00. This action, which in the judgment of the House of Delegates was necessary, has given rise to considerable complaint and has caused some defection. It is nevertheless true that the number of members who have paid dues up to this date for the current year is actually larger than at a corresponding date last year.

It is, of course, unfortunate that it should have been found necessary for the membership dues to be increased just at a time when a great financial depression overtook us, but it is plainly evident from the reports of the Treasurer and the Secretary that an increased revenue for the society was absolutely necessary if debt were to be prevented. Cancellations of advertising contracts have been made in larger numbers than ever before and little new advertising business has been gained. The only sources of revenue the Association has are from membership dues and from advertising. If one source fails, the other must be drawn upon more largely or debt must be incurred.

Your Secretary has received one letter from a member, who seemed to be debating payment of 1920 dues, demanding to know in *whose* interest the increase in annual dues was made. I am informed that this same member, and perhaps others, made some uncharitable remarks on the floor of his county society, intimating that some officer of the Association had profited by the increase. This is absolutely not in accord with the facts. The only officers of the Association who receive any remuneration are the Treasurer and the Secretary, and neither of them has received one cent more than for several years before the annual dues were increased. The stenographer in the Secretary's office was paid \$75.00 a month last year instead of \$60.00 as formerly. All other increases in expenditures were due to increased costs of paper, printing and office supplies.

The necessary expenditures for 1920 were more than \$1,200 in excess of the expenditures in 1919, simply and solely because of the greater cost in printing and distributing the Journal, the increase of \$180.00 in the

yearly salary of the stenographer and the larger cost of office supplies.

The advertising receipts, as will be seen from the Treasurer's report, were greater in 1920 than in 1919 by the sum of \$346.35. This increase was effected by increasing advertising rates.

With the balance in cash on hand on April 1, 1921, it is believed by your Secretary that it will be necessary to maintain the present rate of annual dues throughout this current year, because it has not been possible to make any arrangement for reduction in the present cost of printing the Journal.

It is possible that lower prices will prevail in the printing industry during the year; if so, immediate advantage can be taken of such reductions. It does not appear probable that any greater income can be secured from advertising.

While your Secretary recommended last year that the annual dues be fixed at \$3.00, rather than at \$4.00 as decided upon by the House of Delegates, he is now convinced that the action of the House of Delegates in establishing the larger amount was wise and necessary. It is recommended, however, that the House of Delegates consider the advisability of continuing the present dues of \$4.00 or of reducing the dues to \$3.00 to take effect January 1, 1922. It is respectfully suggested that the House of Delegates announce to the members in the general session that this matter is under consideration. In spite of the fact that the increase in dues was repeatedly published in the Journal during the year, there are still members and officers of county societies who proclaim their lack of information about the matter. It may be well to leave this matter of dues in the hands of the officers of the Association with instructions to reduce the amount to \$3.00 if it appears feasible to do so on December 1, 1921.

The following counties were reported as actively identified with the Association in 1920:

Anderson, Bedford, Blount, Bradley, Campbell, Carroll, Cocke, Chester, Coffee, Crockett, Cumberland, Davidson, Decatur, Dickson, Dyer, DeKalb, Franklin, Gibson, Giles, Green, Grundy, Hamblen, Hamilton, Hardeman, Hardin, Hawkins, Haywood, Hen-

derson, Henry, Hickman, Jackson, Jefferson, Knox, Lake, Lauderdale, Lincoln, Loudon, McMinn, McNairy, Macon, Madison, Marshall, Maury, Monroe, Montgomery, Morgan, Obion, Overton, Polk, Putnam, Rhea, Roane, Robertson, Rutherford, Scott, Sevier, Shelby, Smith, Sumner, Sullivan, Carter, Johnson, Tipton, Warren, Washington, Weakley, White, Williamson and Wilson. Thus it will be seen that 69 of our 95 counties are organized.

Fayette county did not report for 1920. A new society was organized during the year in DeKalb. The counties without societies in 1920 were: Benton, Bledsoe, Cannon, Cheat-ham, Claiborne, Clay, Fentress, Grainger, Hancock, Houston, Humphreys, Lawrence, Lewis, Marion, Meigs, Moore, Pickett, Sequatchie, Stewart, Tronsdale, Unicoi, Van Buren and Wayne.

The Memphis and Shelby County Medical Society reported 280 members in 1920, more than one-sixth of the entire enrollment of the Association.

The Henderson County Medical Society, always having presented a full enrollment, has already reported every eligible physician as a member for the current year, in spite of increased dues.

It is worthy of note, perhaps, that some of the county societies which are never, or at most are slightly represented at annual meetings, are slowest in reporting and loudest in complaining of larger membership dues.

The Journal has not received the support that it must have from the members if it is to be maintained on a plane in keeping with its past record, which is not compatible with the proficiency of the membership of our society.

The Journal should be a better journal and can easily be made better by contributions to its pages from men in this Association who can and who should make contribution.

In spite of earnest efforts to see to it that every member receives the Journal each month, there have been some complaints of failures to get it.

An appeal to the Board of Councilors from the decision of the Giles County Medical Society to withhold membership privileges from one of its former members is in the hands of the Secretary.

The following letter has been received from the Secretary of the Sullivan-Carter-Johnson County Medical Society:

"Dr. Olin West, Secretary,
"Nashville, Tenn.

"Dear Sir: There is a good deal of dissatisfaction among a good many members of our society over an illegal practitioner in our town, named Smith, who is selling a sure cure for cancer, and even goes so far as to give a patient a written guarantee to cure them. A good many patients have come to our attention and have come to us for treatment after the curable stage of the disease has passed, and this man has a number of monuments in the cemetery as memorials to his sure cure.

"Our former Secretary appealed to you for assistance in this matter, and he also appealed to Dr. DeLoach, and the only satisfaction that we got was that we could prosecute him and could pay all expenses of the prosecution if we wished to. One of our members told me yesterday that his idea of the function of a State Society was to guard the public health and look out for the legal rights of the doctors, and the Tennessee Society was doing neither, and he did not care to be a member of it, and expected to take no active part in the society until it did its duty. He and the rest of our members cannot see why we should usurp the authority and functions of the State Society, and Medical Examining Board and prosecute this faker.

"I was instructed yesterday by the society to take up the matter with the American Medical Association and report our inability to get any co-operation from the State Society and State Medical Examiners, and see if they can assist us in disposing of this nuisance, which is, each day, imposing on the unsuspecting public and taking his toll of human life, and who is doing more than any other thing to disrupt, disorganize and destroy the Sullivan-Carter-Johnson County Medical Society, and to destroy the confidence of the members in the Tennessee State Medical Association and the State Medical Examiners.

"Before taking up this matter with the

A. M. A., I would like to give you and your forces another chance to co-operate with us in this matter, for we are determined to get rid of this nuisance and danger.

"Very truly yours,

"W. K. VANCE, JR.,
Secretary-Treasurer Sullivan-Carter-Johnson County Medical Society."

"P. S.—We had a similar case to the above come up in Washington County, Virginia, and I took the matter up with the Virginia State Medical Examiners and got action within a week."

The above letter is submitted to the House of Delegates for such action as may be considered proper.

The Co-operative Medical Advertising Bureau has continued to provide most of the advertising business for the Journal and has rendered a most helpful service. Our members are not yet showing a true appreciation of our advertising patronage and of the effort that is made to keep our advertising up to the highest possible type. Buying from the advertisers in the Journal is safe buying and it is due the Journal and our advertisers that we should buy from them.

Your Secretary desires to acknowledge with most heartfelt gratitude the many helpful kindnesses which he has received from officers of the Association and of county societies, and from many individual members of the Society. To Mrs. Frances Hamilton, stenographer, and assistants in the Secretary's office, especial acknowledgement is hereby made for efficient and conscientious service, which has counted largely in the interest of the Association.

OLIN WEST, Secretary.

April 12, 1921.

SECTIONAL SOCIETIES.

The East Tennessee Medical Association will meet at Maryville on May 19 and 20.

The Middle Tennessee Medical Association will meet at Springfield on May 12 and 13.

The West Tennessee Medical and Surgical Association will meet at Paris on May 12 and 13.

The Upper Cumberland Medical Society will meet at Gordonsville on May 24 and 25.

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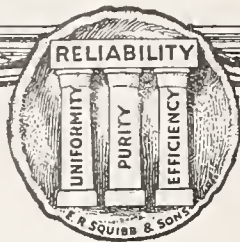
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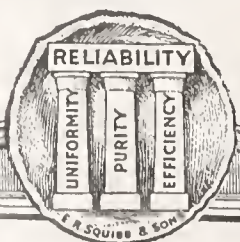
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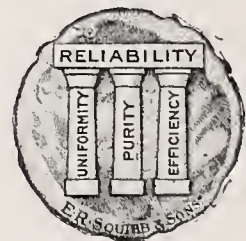
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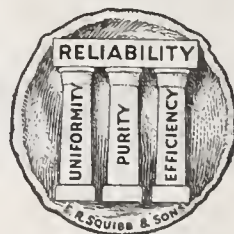
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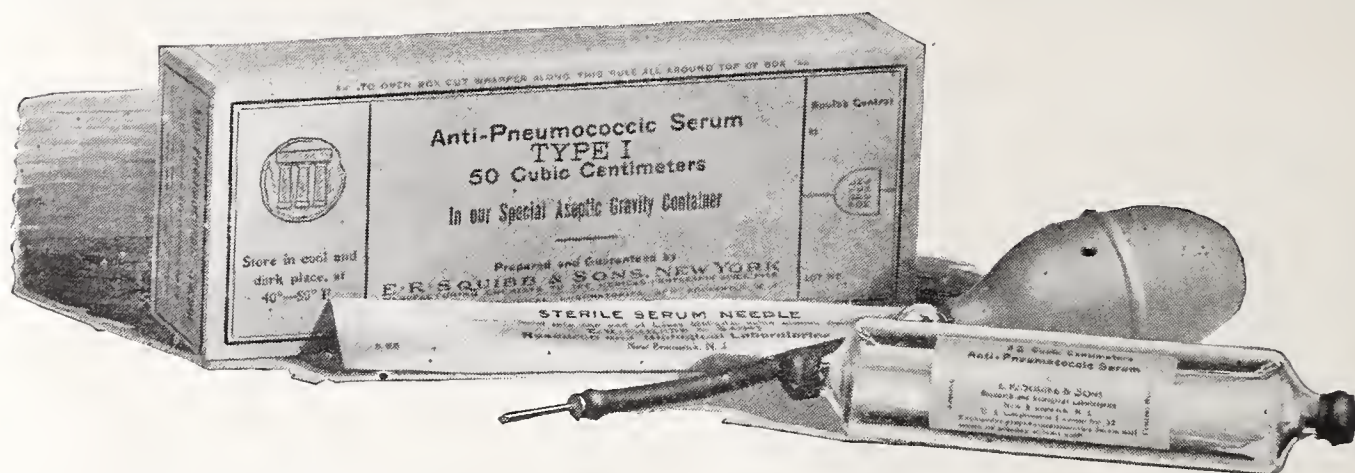
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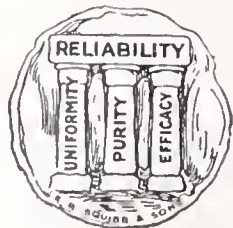
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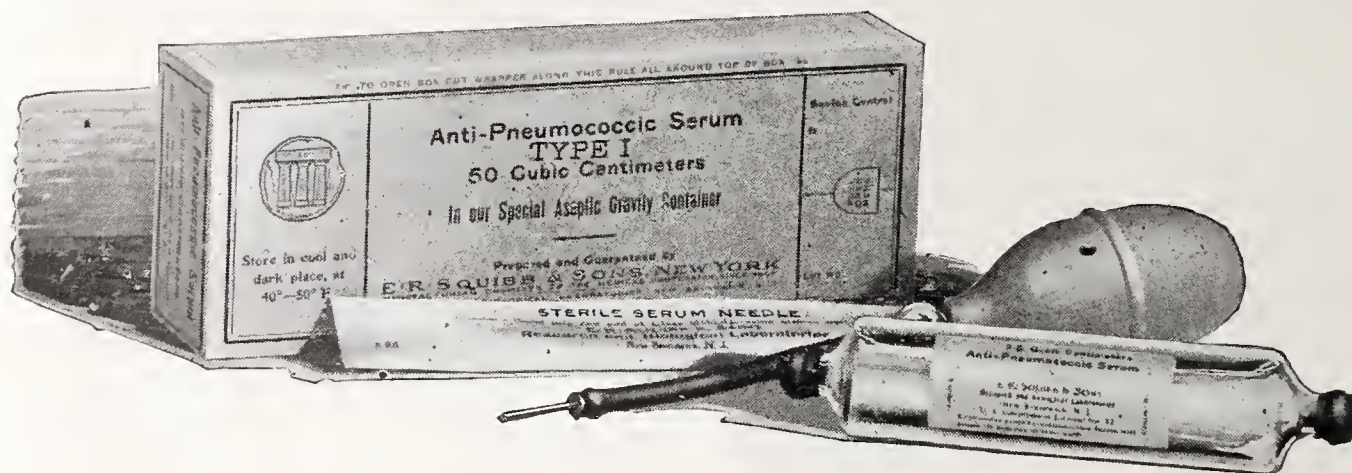
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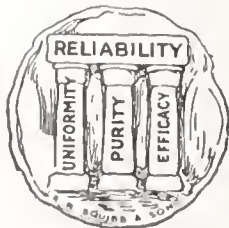
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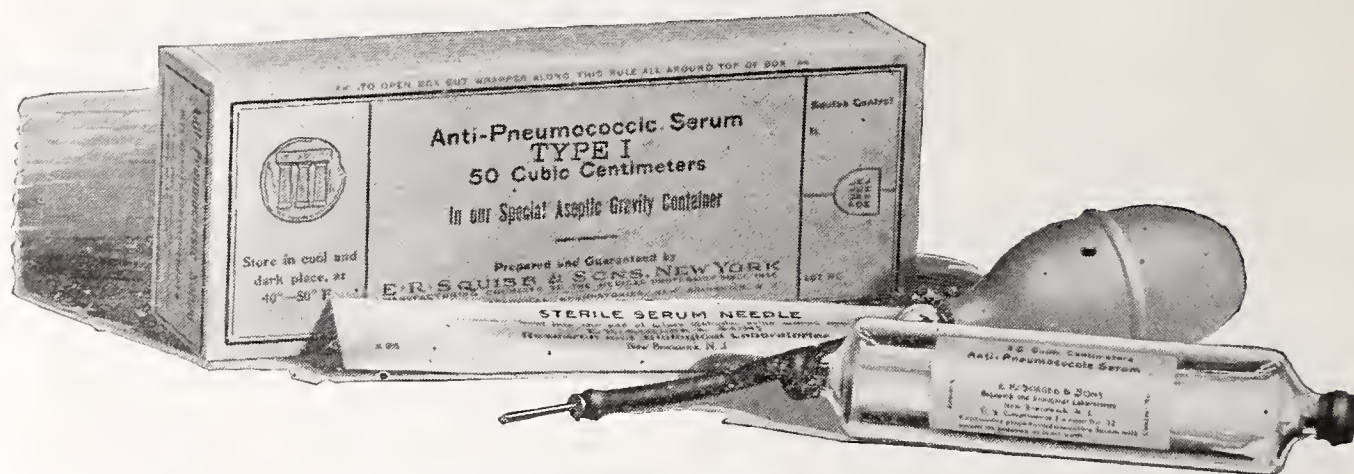
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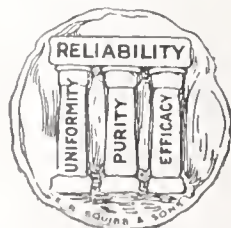
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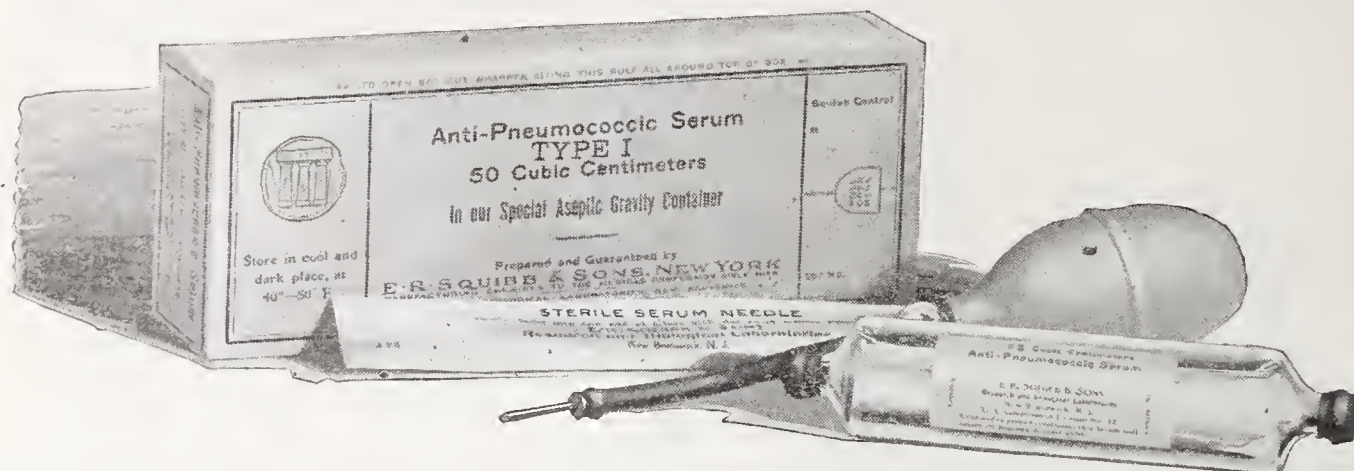
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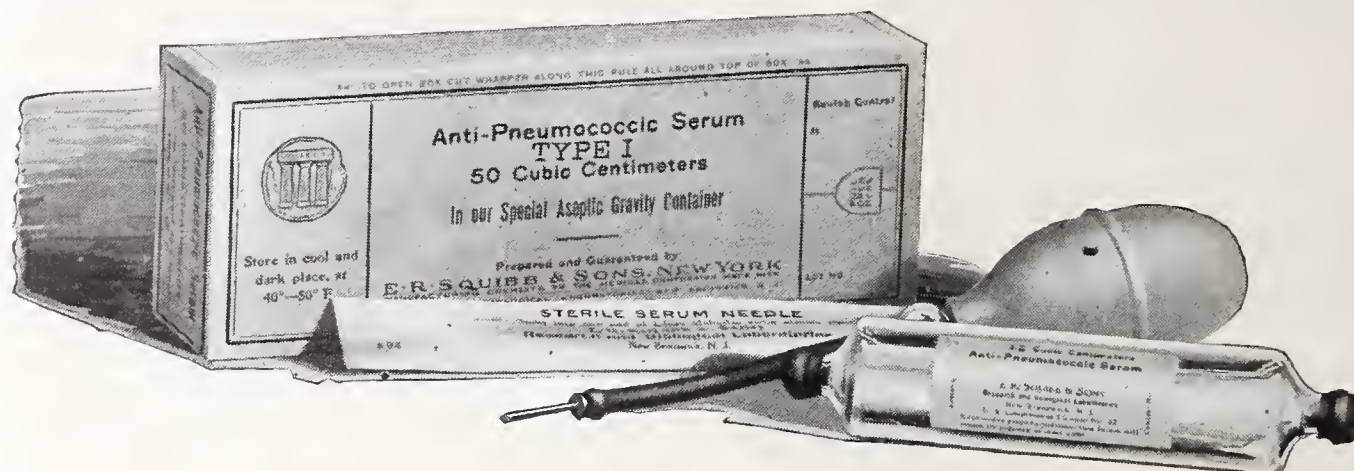
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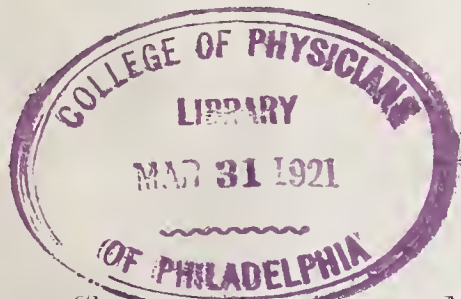
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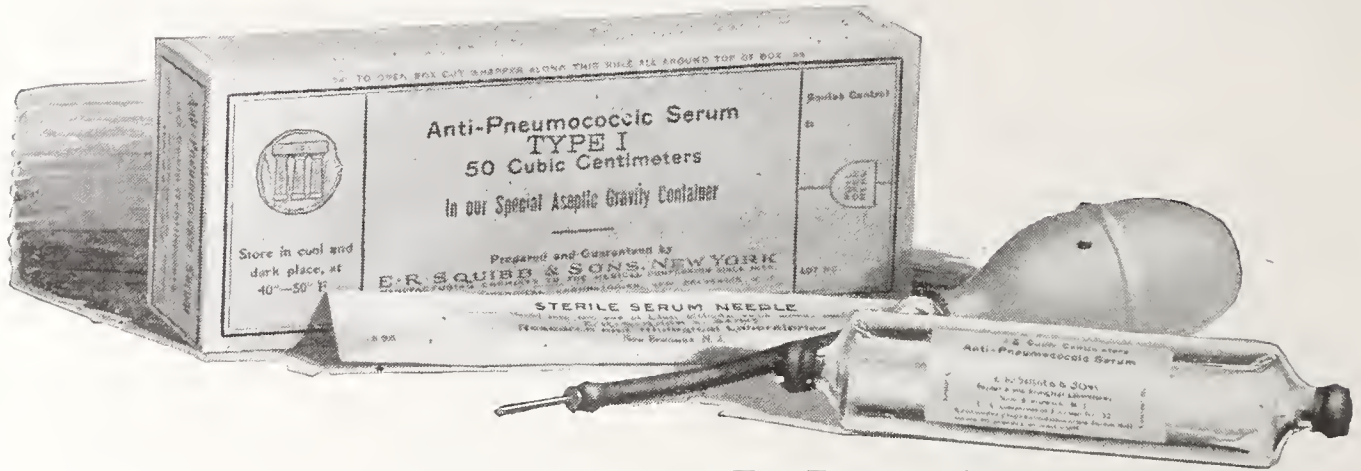
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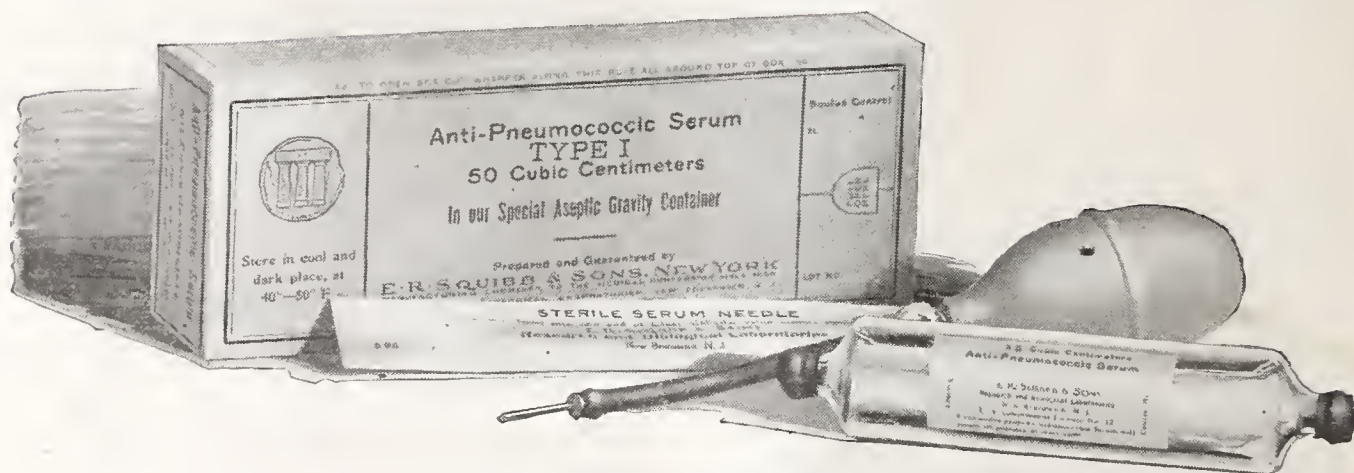
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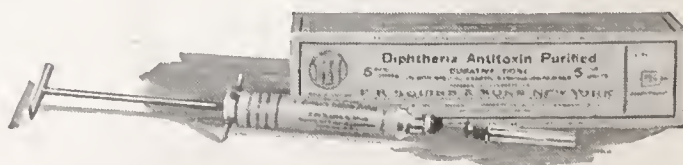
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